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JOURNAL  
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*Association of American Medical Colleges*

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**Financial Aid to Medical Education\***

WALTER ANDREW BLOEDORN

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Dean, George Washington University School of Medicine  
Washington, D. C.

There is no man made institution of greater potential importance to the future of man himself than the medical school. Clearly, the destiny of man will be influenced very largely by his ability to establish and maintain health—physical health, emotional health and intellectual health.

Clinical experience accumulating through the ages has demonstrated that the healthy functioning of the individual is related intimately to his struggle to find emotional, spiritual, and intellectual equilibrium, and that his success in this struggle is influenced by his success in combatting organic disease.

We may look on the individual by analogy as the cytological unit of humanity. The physical, emotional, and mental health of the individual determines the health of the community. The community constitutes the tissue of social structure. On the health of this tissue, in turn, depends the health of the organ—the nation. And the healthy, harmonious functioning of the nation is necessary for the health of the total organism, mankind.

The doctor alone does not carry the entire burden of responsibility for all the influences that affect health. The research scientist, the engineer, the teacher, the pastor, the sociologist, the economist, the statesman, and many more have their share of responsibility. Yet it is the doctor who is called on to counsel and guide all the others where questions of health are concerned. And it is the medical school that trains the physician for his task.

The medical sciences have amassed a great store of knowledge concerning the causes, prevention and cure of disease. Workers in clinics and in research laboratories today are on the threshold of great new discoveries that will prolong and enrich the lives of men. On the shoulders of those who practice medicine falls the responsibility for bringing to the people the fruits of this scientific endeavor. The school of medicine is the medium through which this knowledge must be imparted to future doctors.

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\*Presidential address delivered at the Forty-ninth Annual Meeting of the Association of American Medical Colleges, held in White Sulphur Springs, West Virginia, November 8-10, 1948.

In view of what any fair minded observer would concede to be the enormous importance of the medical schools, the fact that their future is threatened for lack of a few millions of dollars to meet the annual costs of medical education is shocking.

The facts regarding the financial plight of the nation's medical colleges are well known and have been stated ably by distinguished experts in this field.

Medical education at present costs about \$50,000,000 a year. Medical schools need approximately 16 million dollars a year more than they now have available, and about \$200,000,000 for long range capital developments, if they are to maintain existing standards of medical education and keep pace with growing needs and opportunities for improvement.

#### Where is the money to come from?

Basically, there are three sources of funds to defray the costs of medical education. These are tuition fees, private sources and public funds.

The possibilities of increasing funds available from these three sources have been given careful consideration by your Executive Council during the past year. A committee on Financial Aid to Medical Schools was formed and a questionnaire on the subject was prepared and forwarded to all medical schools. Although all the replies to the questionnaire have not been tabulated, I have had an opportunity to study the first 47 replies received, and assuming that this represents a good sample of opinion among the medical schools, I shall refer frequently to the views expressed therein.

On one point there was complete unanimity—all schools agreed that there is need of financial aid for medical education. On other points, there was no such unanimity. Many suggestions were made regarding means of obtaining financial aid. These included the following suggestions:

Increased efforts to obtain money from private philanthropy.

Local fund raising drives.

A national foundation with a nation wide fund raising drive.

Participation in the funds received by such national drives as those conducted by the poliomyelitis, heart, tuberculosis and cancer organizations.

Grants from industry for medical research.

Fees for medical services rendered by faculties.

Increased local and state tax support.

State and federal scholarships or other aid to students.

Higher tuition fees.

Federal aid.

These suggestions are not listed in the order of their frequency or importance but represent a cross section of the opinions expressed. All of these suggestions warrant careful consideration.

With respect to private philanthropy, it is generally recognized that funds

from this source are becoming increasingly difficult to obtain. However, this source may continue to play an important role in financial aid to medical education, and should not be neglected. Although it is conceivable that a few fortunate institutions might solve their problem with the help of philanthropists, it's scarcely likely that this solution alone would provide for all the medical schools. The tax supported medical schools of the state universities are generally in a much better position with respect to financing, but even some of these schools are finding it difficult to make their appropriations meet their needs. Tax supported schools in many instances might find it even more difficult to obtain funds from private sources than would private medical schools.

The success of a local fund raising drive undoubtedly would vary with the individual school and the community which it serves. Again, it seems unlikely that this approach offers a solution of the problem for all medical schools.

The idea of a foundation for medical education, and ways and means of raising funds for such a foundation have been considered by the Executive Council. There is a fairly general opinion among members of the Council, after consultation with experts on fund raising, that a public appeal for funds for medical education would be ineffective. It would lack the dramatic, general appeal of campaigns related to poliomyelitis, cancer, tuberculosis and heart disease. It would be difficult for the average layman to understand why he should be called upon to contribute money to help educate men for a profession to members of which he already is paying fees. Only 23 per cent of the medical schools favored a nation wide drive for medical education, and 87 per cent believed such a drive would fail, answers to the questionnaires indicated.

The suggestion that a portion of the money obtained by such national drives as those conducted by poliomyelitis, tuberculosis, heart, cancer and other similar voluntary lay organizations has a certain amount of logic to support it. Obviously, the ultimate control of diseases sought by such organizations cannot be achieved without properly trained doctors. Logical as the idea may be, however, the medical schools have no direct claim on, or approach to, participation in such funds.

Grants from industry or other sources for medical research in many instances have proved valuable in strengthening the research programs of medical schools. The medical research problem, however, is not identical with the medical education problem, and in general, grants for research lend extremely limited financial assistance to medical teaching. On the contrary, they often impose additional financial burdens on medical schools.

The possibility of augmenting the incomes of medical schools by fees charged for professional services of faculty members has been suggested. This procedure, if generally adopted, would impose an additional burden on faculty members already carrying heavy schedules of teaching and research activities. It is scarcely an adequate solution to the problem of financial aid to medical schools.

Increased local and state tax would, of course, help those medical schools now receiving such support. It would, however, fail to help the majority of

the privately supported schools, and not all tax supported schools find it possible to obtain truly adequate funds.

We must reject the idea of the medical student bearing the entire cost of his education in the form of increased tuition fees as a solution to the problem. Tuition fees already are high. To increase them to meet the actual cost of medical education would bar from the study of medicine many well qualified individuals who could not assume this heavy financial burden. Only 17 per cent of the medical schools replying to the questionnaire believe that tuition fees should be increased.

In examining the problem broadly, two facts stand out. First, if the public wants the services of well trained physicians, one way or another it will have to pay the cost of training them. Second, if the medical schools are to continue they will have to obtain money from whatever legitimate sources are available.

A realistic view which points the way to one possible solution is to recognize the medical school as the key link in the nation's public health structure. Without the medical school there cannot be a practicing physician. Without the practicing physician there cannot be public health. Thus, it becomes a matter of national concern regarding public health and welfare, even national defense, that the medical schools be adequately financed. If this principle is fully accepted, the appropriation of federal funds to aid medical schools could be justified if it is necessary. Sixteen million dollars a year is a very small investment of the taxpayer's money in protecting his own health. It is true that many millions of dollars of public funds already are being spent for public health programs. There is abundant proof that these expenditures more than pay for themselves in reduction of illness, disability and death. Sixteen million dollars would represent a negligible additional amount to protect and enhance the nation's already large and profitable investment in health. Of the answers to the questionnaires on aid to medical education, 66 per cent of those tabulated indicated a belief that federal aid is desirable or necessary.

There is a general feeling, as indicated by the answers to the questionnaire, that each medical school individually, and all the medical schools collectively, should vigorously pursue every possible course that might make the needed funds available before accepting federal aid as the final solution to the problem. From the point of view of medical education at its best, the prospect of federal aid to medical schools is fraught with potential difficulties and dangers even though it could be justified as a proper expenditure of federal funds. The medical schools are aware of these potential dangers, and this awareness was stressed in the answers to the questionnaire.

No greater disaster could befall the medical school, not even financial collapse itself, than bureaucratic regimentation or political exploitation. The consequences of such a calamity are so well recognized that they could be prevented if adequate safeguards were written into any workable law providing for federal aid to medical education. That federal funds can be employed effectively in the interest of medical science, and thus to the benefit of all the people, without regimentation

or outside interference, has already been established. As pointed out by a number of medical schools answering the questionnaire, examples have been set by the programs of grants of federal funds for research in medical and allied fields. Applications for grants are passed on by groups of expert independent scientists. A system of federal grants to aid the medical schools in defraying the cost of teaching medicine could be built upon an analogous pattern. An advisory council selected from the nation's leaders in medical education could be created to consider applications of medical schools for federal grants to aid in the teaching of medicine. Grants in aid recommended by such a council should be made, as so often stated by schools answering the questionnaire, "with no strings attached."

The problem of financing medical education includes also the problem of financing the medical student. Under the GI bill of rights hundreds of young men and women are now enrolled in medical schools who could not possibly be there if it were not for the financial assistance they are receiving from the federal government.

It will not be long, however, before the era of the GI medical student will have run its course. Will this mean that many potentially capable students of limited financial means will be unable to obtain a medical education?

This again raises the question of federal aid. Aid to the medical student has been proposed as one means of channelling funds into the medical schools. It has been suggested by some medical colleges that the tuition fees be raised so that they actually represent the full cost of training medical students, and that a substantial portion of such increased fees be paid to the medical schools on behalf of the students.

The fact that the medical schools are in financial distress has become so well known, in some quarters at least, that means of alleviating that distress have been proposed. Even as we discuss the subject others proceed to formulate legislation which would provide for federal aid to medical schools. As you know, legislation was proposed at the last session of Congress to provide for grants and scholarships for medical education and also for dental, nursing and public health education. This legislation was introduced with little or no modification of various features to which objections had been made by the Executive Council of the Association of American Medical Colleges. There is every possibility that legislation vitally affecting the structure of medical education may be introduced at the next session of Congress. It is very important, therefore, that the medical colleges make known conditions under which federal funds could be accepted with benefit to the public and to the schools themselves. Otherwise it is conceivable that well intentioned legislation might be enacted with provisions which would seriously curtail the usefulness and utilization of such funds.

If federal aid is forthcoming the details should be decided only after careful study and consultation with medical educators. These details should conform to certain general principles regarding which the medical schools are in unanimous agreement.

Briefly summarized these general principles which are basic to any sound program of financial aid for medical education from any source are:

*First*, the acceptance by any medical school of any money from any source should in no way impose or imply any restriction of the freedom of the medical school in conducting its curricular, research, or administrative activities or in selecting its students.

*Second*, the administration of funds for medical education should be free from political control.

*Third*, decisions on grants to medical schools should be in the hands of medical educators.

If by some unhappy chance legislation not recognizing these principles should be enacted, little would be gained, but all would not be lost, for no school is obliged either to apply for or to accept aid from any source under conditions that would threaten its academic and administrative freedom.

It is true that one way or another funds must be found to maintain medical education in this country at its high level, unmatched in any other land. At the same time it is the responsibility of the medical schools to safeguard the academic freedom which has made this great achievement possible. To fulfill both these responsibilities will require ingenuity and leadership. Surely this ingenuity and leadership will be forthcoming, for the future of medical education depends upon it, and so, perhaps more than we realize, does the future health of mankind.

## The Medical Film Institute of the Association of American Medical Colleges

A Plan Proposed by the Committee on Audiovisual Aids of the Association of American Medical Colleges\*

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A Medical Film Institute is urgently needed to correlate the efforts of medical college facilities and medical film producers. Through this collaboration curriculum-integrated medical teaching films and other audiovisual aids can and will be produced. Two committees have developed and sponsored the plan to establish the Institute, one representing the medical educators, one representing a large segment of the medical film producers. The former comprised the Committee on Audiovisual Aids appointed by the Association of American Medical Colleges; the latter was the Inter-Departmental Committee on Medical Training Aids of the government agencies: the War Department, Navy Department, Veterans Administration, Public Health Service, and Air Force.†

After joint deliberation and planning, two correlated reports were published. The Inter-Departmental Committee published a general outline of the proposed Medical Film Institute.<sup>1</sup> The Committee on Audiovisual Aids recommended the establishment of a Medical Film Institute, indicated its general functions, and listed the gains which would result to medical education.<sup>2</sup>

After the publication of these reports the Inter-Departmental Committee transferred further action on the matter to the Committee on Audiovisual Aids. This transfer of control of the Medical Film Institute to the committee appointed by the Association of American Medical Colleges appeared to be desirable, since it would place complete responsibility in the hands of the official agency exclusively concerned with medical education. At the same time the Inter-Departmental Committee indicated its willingness to be of assistance to the Medical Film Institute and its Advisory Committee whenever such assistance was desired by the Association of American Medical Colleges. The Inter-Departmental Committee also expressed its desire to utilize the services of the Medical Film Institute on the same basis as other producers of medical films.

\*The Committee on Audiovisual Aids acknowledges assistance in the preparation of this plan by Comdr. Robert V. Schults (MC), USN, Bureau of Medicine and Surgery, U. S. Navy Department; Dr. Adolf Nichtenhauser, Film Consultant, Navy Department; Mr. Bernard V. Dryer, Film Consultant, National Cancer Institute; Dr. David B. Ruhe, U. S. Public Health Service.

†Member following unification of the Armed Forces in 1947.

Further work of the Committee of the Association of American Medical Colleges has been reported in the Journal of the Association.<sup>8</sup> In brief, these actions have been the appointment of Dr. David S. Ruhe as Director, the selection of office space in the New York Academy of Medicine, and initiation of a search for the necessary financial support. These actions have been authorized by the Association of American Medical Colleges, which has also authorized the treasurer of the Association to receive and hold in trust funds for the operation of the Institute.

The present publication is, in a sense, a continuation and an elaboration of the previous reports. The material is grouped under three main headings: (1) the Reasons and Need; (2) the Functions, and (3) the Structure of the proposed Medical Film Institute.

#### I. REASONS AND NEED FOR THE ESTABLISHMENT OF A MEDICAL FILM INSTITUTE.

A. The value of medical films is generally accepted. The teaching potentialities of medical films are extraordinary, and there is hardly one aspect of medical education that has not benefited from medical films. A whole literature exists in which medical authors have described what films have done and could do in medical teaching, communication, documentation and research. The motion picture can record cases, techniques and experiments and keep them ready for reproduction at any future time. Many medical or biological phenomena can either be photographed or presented by means of animation. Changes in space and shape of such phenomena are admirably suited to the motion picture. Visual aids can magnify structures and phenomena to such a degree that a great number of spectators can see more and better than can the individual observer. The motion picture is independent of time and of space. It can accelerate or decelerate time; many phenomena beyond direct perception can therefore be demonstrated. It can compress years into minutes in the progression of a clinical case, revealing facts not otherwise observable. It can bring the whole world of medicine to the spectator; certain limitations of the medical school, the general hospital or the practicing physician can be overcome. It can disseminate and preserve the technique and accomplishments of medical authorities of all countries. The film can be more discerning than the human eye, and consequently the use of the film can increase the perception and comprehension of the spectator. Sound film can combine the sound with the appearance of phenomena. And by the use of animation the visible and invisible alike can be expanded to the limits of the human imagination.

When all the characteristics of the motion picture mentioned above are properly controlled and applied, it is a superlative aid which makes teaching and learning more intensive and extensive, easier and less time-consuming.

B. The present state of visual aids in medical teaching is the result of a continuous if irregular progress. But the rate of progress could be increased by better correlation and integration of the efforts of all those active in the production and the use of visual aids in medicine. Within the medical schools more and better visual aids are made each year. Within the governmental Services

the production of medical visual aids, largely 16 mm. sound films, was greatly accelerated by the second World War. During this time the Armed Forces and other governmental agencies organized a tremendous production of training films for war purposes, in which medical films played a considerable part. Many first-rate films were made for the instruction of enlisted personnel in hygiene, in first aid, and in sanitation; for the rehabilitation of patients; and for the training of auxiliary medical personnel. Because of the relatively small number of medical officers, fewer and less elaborate films were produced for their use, but toward the end of the war, and afterward, some excellent films of this type have appeared. Although the peacetime strength of the Services is smaller, a number of medical films is being made by the governmental agencies. One of the gains which may result from a Medical Film Institute is the production of some of these films in such a way that they can be of optimal use in formal medical education.

The production of teaching films within the medical schools likewise has been increased. Of late there has been within the medical schools an increasing attempt to produce films and associated aids that are as truly adjuncts to medical teaching as are lantern slides, charts and models. There is also within the medical schools an increasing tendency towards the cooperation of individuals producing films within the subject matter specialty groups. This kind of cooperation has involved the exchange of existing films, slides and film strips, and the interchange of information concerning unfinished projects. In addition, there is an ever-increasing interchange of information about the techniques of production, about the relative values of different ways of presenting the different types of material, and about the various techniques of utilization of the existing visual aids. This exchange of materials and of information will improve the quality of the visual aids. It will make possible their correlation with the total teaching programs. And it will improve the effectiveness of their utilization. This cooperation also has the effect of decreasing the amount of unintentional duplication. So far this exchange within the medical schools and within the specialty organizations has remained largely restricted to the members of a given scientific organization or specialty group. The cooperation is more restricted than that practiced by the Inter-Departmental Committee, which exchanges information among the four Services and Veterans Administration in order to minimize duplication of effort.

There exists no organization whose primary task is that of expediting and correlating the efforts of all the individuals and groups active in the production and utilization of audiovisual aids in medicine.

C. The need for a Medical Film Institute is strongly indicated by the number of scientific societies, specialty groups, and individuals who are now trying to correlate their efforts in this production and use of visual aids. A single organization designed to serve as a center for the correlation of effort could more effectively expedite the exchange of material and information than can the individual groups now making cooperative efforts. Another advantage of the

Medical Film Institute would be its ability to disseminate helpful information among the different existing groups.

Another equally strong reason for establishing a Medical Film Institute is the present lack of correlation between the film production of the governmental and commercial film agencies, and that of the medical schools. Through such an organization information relative to all the production schedules of the governmental and commercial agencies, and the medical schools could be disseminated, and much needless duplication of effort could be avoided. This monetary saving alone should be many times greater than the cost of operation of the Medical Film Institute.

The greater dissemination of knowledge pertinent to production schedules should also increase the correlation of the different productions. Certainly such information would cause the inclusion of some factual material and the exclusion of other material from a considerable number of productions.

The situation in regard to the use of audiovisual aids is similar. Information relative to utilization that is acquired by one group would become more readily available to members of other groups.

An additional need is the establishment of acceptable standards and techniques of film appraisal and for the production of a catalog which will serve medical teachers by giving them the kind of detailed information they frequently seek but cannot find.

By meeting the above needs the Medical Film Institute will become more than a mere clearing house for the various groups it serves. It will become a center that is manned by personnel who are experts in the various phases of planning and use of audiovisual aids. The service of these experts will be enhanced by their experience with the visual aids that are made by all the participating groups.

## II. THE FUNCTIONS OF THE MEDICAL FILM INSTITUTE

Necessarily the Medical Film Institute will have many functions. It will serve as a center of study and practical development of films, but also as a practical working organization in the field of motion pictures and related audio-visual aids in medicine and the allied sciences. It will develop and provide needed services, and aid in the development of effective patterns for the production and utilization of medical films. It will be operated by a Technical Staff who will implement the basic program and serve as a link between groups and individuals in the medical field and those groups and individuals who are active in the various branches of film work.

From the outset the functions of the Medical Film Institute will concern themselves in greater or lesser degree with all the aspects of production and utilization. However, primary interest at this time must be concentrated upon medical undergraduate and postgraduate instruction. Specialty teaching and training of the auxiliary groups will follow as the work of the Institute develops

and as means become available to expand its scope. This will be true also of health education. Certain activities have immediate importance; others have maximum value as long range growth developments. Certain tasks are self-liquidating; others are cumulative. Most of the functions of the Institute will continue to be decentralized, in the schools and film production agencies; but some activities are by their nature impractical unless they are centralized.

A. Nine functions of the Institute may be stated.

1. **CENTRALIZATION OF PRODUCTION INFORMATION**—A clearing house will be established to list all medical film productions, planned or under way; to prevent unnecessary duplication; to inform all medical and allied science groups of services available; and to solicit the cooperation of such agencies.

2. **COORDINATION AND LIAISON SERVICES**—Active steps will be taken to coordinate the medical educational interests. On the one hand the Institute will aid in the exchange of material and information between the individuals or organizations actively engaged in the production of visual aids within the medical schools and will provide assistance on basic film planning and production. All these services are available to independent physicians and scientists also within the limits of time and personnel. On the other hand, liaison will be developed between the medical schools and organizations which produce films, such as the Inter-Departmental Committee of the governmental agencies. Suitable production requests from schools and organizations in medicine and the allied sciences will be collected by the Medical Film Institute. If the Director or the Advisory Committee of the Institute decides that such a request does not conflict with the known production schedules of medical films, the requests will be submitted to the Inter-Departmental Committee or to commercial sponsors or producers for possible action. Although the Institute will not be held responsible for individualistic duplication of effort, sometimes necessary, it will be its duty to record such duplication in its annual report.

3. **ADAPTATION OF FILMS TO MEDICAL TEACHING**—As an example, the Institute will participate in the currently progressing experimental project of curriculum integration of audiovisual aids in preventive medicine. This project was developed through the collaboration of the Conference of Professors of Preventive Medicine, and the Production Division, Communicable Disease Center, U. S. Public Health Service, from November 1946 onward. The development of the program between medical school teachers and a professional film production agency may well prove to be one acceptable pattern for the incorporation of visual aids into the medical curriculum.

The Medical Film Institute plans to participate in conferences held by other groups of teachers, similar to the Conference of Professors of Preventive Medicine, in order to explore the application of the audiovisual aids as functional components in the various courses of medical, dental and veterinary medical curricula. Such conferences will enable the personnel of the Institute to be of greater aid to the individuals producing the visual aids within the medical schools, governmental agencies and commercial film companies. Although the

Institute will have no direct connection with curriculum planning, it will keep fully informed of that planning so that the fundamentally important role which visual aids play in medical teaching may be fully integrated with the total curriculum.

**4. CRITICAL CATALOGING**—As medical film cataloging by the Institute gets under way, methods and procedures for the critical appraisal of these films will be studied. An effort will be made to develop standards for the evaluation of film content and presentation, for the testing of film effectiveness in the classroom for the nature and composition of reviewing groups, and for other features of this work. This critical cataloging will be correlated with similar efforts of catalogers such as those of the American Medical Association, the American College of Surgeons, the Academy International of Medicine and Dentistry, and the Scientific Film Association of Britain.

**5. MEDICAL FILM PRODUCTION DEVELOPMENT**—Heretofore the production of medical teaching films has been largely in the hands of talented individual teachers whose efforts have been limited by insufficient financial and technical resources. The Institute will endeavor to develop improved patterns of production which, based upon adequate financing, will incorporate the best combination of scientific and educational resources with competent and imaginative production techniques.

It is anticipated that one of the first model projects of this type will be undertaken in cooperation with Dr. Arnold Gesell, of the Yale Clinic of Child Development, who has proposed a series of films for undergraduate and post-graduate pediatric instruction. An outline of the required film production development plan has been made after a preliminary examination of his existing research footage.

**6. INFORMATION, TRAINING AND UTILIZATION SERVICES**—The Institute will assist in developing channels of information on all aspects of audiovisual materials. The methods of collecting, assembling and disseminating such information will be explored. As a part of its function of disseminating information the Institute will begin the preparation of a roster of qualified film workers, and medical and scientific collaborators.

The possibility of organizing two training courses will be given early attention. One course will be designed to give medical men orientation in film planning, production and utilization. The other course will try to give film workers the kind of training which will enable them better to apply the techniques of motion pictures to medical subjects.

Standard specifications for the installation of audiovisual aids will be secured and their general application sought, particularly with regard to current medical school and hospital construction programs. The Institute will study and propagate effective methods for the financing, installation and operation of the physical equipment necessary for good film usage. And it will advance the general introduction of films as a medium of medical instruction, research and communication.

7. **FILM DISTRIBUTION AND PRESERVATION**—Hand in hand with the preparation of the catalog, and in collaboration with interested groups, the Medical Film Institute will study and attempt to bring about an effective system of distribution and preservation of medical films. The need for improving and expanding the distribution of medical films will arise as soon as cataloging begins. Methods will be studied in collaboration with interested groups, and assistance will be given to the implementation of feasible procedures. Methods of film archives development and maintenance will be studied and good practices recommended.

8. **MOTION PICTURES AS A RESEARCH METHOD**—The Institute will investigate pertinent techniques and equipment, and advance the use of cinematography as a standard method of medical and biological research.

9. **INTERNATIONAL FUNCTIONS**—The Medical Film Institute will serve as a link between the medical film activities of the United States and those abroad through such international organizations as the United Nations Secretariat, the World Health Organization, the United Nations Educational Scientific and Cultural Organization, the World Medical Association, as well as through foreign national bodies concerned with visual aids in the field of health and medicine.

#### B. MODE OF OPERATION

The methods of operation of the Institute will be of three kinds:

1. Some visual aids will be special projects which are financed by grants and are to be planned and carried to completion under the supervision of the Medical Film Institute. In these instances the personnel of the Institute will have wide budgetary opportunity to make full use of medical film workers throughout curriculum research, production planning, and studio production. In certain instances the medical film personnel will also participate in evaluation and utilization. These special projects should prove to be excellent experiments to demonstrate the quality of visual aids which can be produced when the medical film experts are given a free rein. If these films are superior teaching aids they will set the pattern which should be followed.

2. Many visual aids will be suggested by the medical schools and produced by one of the governmental or commercial agencies. In some of these productions the medical film workers from the Institute will be assigned on a contractual basis throughout the complete planning and production of the films. In other productions, assigned to the governmental agencies, the Medical Film Institute will participate only in certain limited phases of production.

3. Many visual aids will be planned and produced wholly within the medical schools. Any school which feels it can be helped by the Institute may ask for such help and accept or reject whatever advice is given it. The amount of help available to such schools will, in part, depend upon the budget available to render requested services.

Two ends will be attained by the above procedures. First, the Medical Film Institute will have an opportunity to devise optimum patterns of film

planning and production procedures. In this important and complex phase of the program, the Medical Film Institute will, in collaboration with the teachers of medicine, develop and establish production methods which will fully utilize the potentialities of the film as a teaching aid. Second, since many productions are carried out wholly within the medical schools, new techniques of illustration and of utilization will be developed by the men whose primary interests are in all of the aspects of medical instruction. It will be the responsibility of the Medical Film Institute to foster an exchange of information between the film experts and the teaching experts, since from the latter must come most of the information relative to the usefulness of a given visual aid.

However, only the individual teacher of medicine can determine the importance and role of any specific visual aid in his teaching pattern. The teacher must continue to assume the responsibility for assigning the proper role to all of the teaching aids, including the visual ones. These must be placed in the proper perspective with the laboratory and patient experience, the "elbow teaching," and the personal contact with teachers who are authorities in their own fields of learning.

### III. THE STRUCTURE, PERSONNEL AND BUDGET OF THE INSTITUTE

The Medical Film Institute will be established as an agency of the Association of American Medical Colleges. It will be guided by an Advisory Committee, appointed by the Executive Council of the Association, and it will include representatives of medical and allied education, of medical science and practice, of general education, and of educational films. The Advisory Committee will determine the general policies, verify appointments to the staff, and determine budgetary policies. The Director will act as the secretary of the Advisory Committee.

#### A. THE ORGANIZATIONAL PLAN.

<b>AAMC EXECUTIVE COUNCIL</b>		
<b>ADVISORY COMMITTEE</b>		
<b>THE DIRECTOR</b>		
<b>ADMINISTRATION</b> Advisory and Coordinative Services		
<b>PRODUCTION</b> Curriculum Integration Production Planning Production Supervision Experimental Projects	<b>UTILIZATION</b> Critical Cataloging Distribution Utilization Methods	<b>SERVICES</b> Information Publications Film Training Archives

It is essential that the activities of the Medical Film Institute be highly correlated with those of the teachers of medicine. Since the Association of American Medical Colleges is the organization which represents the teachers of medicine, it is proper that the Institute be established by and be responsible to that organization for the following reasons:

1. The Institute is conceived as a technical operational agency in the field of films and related visual aids. The Institute is therefore an educational film agency serving medicine, and the reason for bringing it into existence is the service which it may render to the teaching of medicine and the allied sciences.

Its operations are wholly voluntary. Any bona fide medical organization or allied science groups can request its services. Any of the Institute's recommendations can be accepted or rejected.

2. It is recognized that the Institute must concern itself with the production of the kind of aids which will meet the needs of the teaching pattern in medicine and the allied sciences. Since medical education is flexible and advancing, it is recognized that there will be room for experimental teaching patterns which, if they prove their worth, can take on the value of tried and tested pedagogy.

3. The experiences of the Institute will enable it to better serve the groups not primarily concerned with formal medical education, such as general practice, medical specialties, nursing, technician training, dentistry, veterinary medicine and health education.

4. The ultimate financial support for the Institute will come from a number of groups using films for teaching. The primary responsibility for the Institute will, however, continue to be the teaching program of the medical schools.

B. THE INITIAL BUDGET of the Medical Film Institute shown below covers the expense of the Director's office.

Director .....	\$10,000
Secretary-Bookkeeper .....	4,000
Travel .....	2,400
Supplies and Utilities .....	1,200
Rentals .....	2,400
Equipment .....	2,200
Miscellaneous .....	300
Total .....	<u>\$22,500</u>

The purpose of the initial budget is to provide a basis for the development and beginning operation of the Medical Film Institute. This budget must be regarded as sufficient to merely maintain a skeleton staff. Only if additional funds for a period of several years are secured will it be possible to assemble and train a competent staff to carry out the difficult tasks in a methodical way. Some income may be expected from the sale of the catalog and other publications. Another source of income will be in the field of production development. There is no non-commercial film agency to which organizations and individuals can turn for competent advice and assistance in their production problems. In this respect the Institute will fill a need by its mere existence. If in addition the Institute develops more effective production patterns and procedures, and can demonstrate, through its participation in projects, that failures and financial waste are greatly reduced and that better results are obtained, its services will be in demand. It can be assumed that medical organizations, public agencies, and commercial film interests will pay for such services, either in the form of

special grants, or of work contracts. Most of this income will be used for the employment of additional personnel to meet the objectives of such grants or contracts. It is also possible that a proportion of the support of the Institute will be assumed by the medical schools. This may occur when the medical schools recognize the benefits they obtain from the Institute's activities.

It can be foreseen that there will be a continued need for an organization which can provide certain services that would be impractical or too expensive for a medical school or other organization to perform alone. This refers particularly to such functions as cataloging, information and clearing house services, and technical assistance of many kinds. Moreover, a need for continued research and practical work in the development of visual aids can be anticipated. The establishment of the Medical Film Institute, by pooling the efforts of medical educators, scientists and film workers, will result in significant progress in the teaching of medicine.

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## The Role of the Surgeon in the Teaching of Anatomy\*

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It is gratifying to have this opportunity to appear before the Society of University Surgeons. I have chosen as topic, "The Role of the Surgeon in the Teaching of Anatomy," in which we have a common interest. You are concerned about the adequacy of preparation of the students who come to you for instruction in surgery, and as an anatomist I carry a share of the responsibility in building that preparation. The discussion will be in terms of undergraduate medicine, though the principles are applicable as well to the period of post-graduate training. It is intended that the term "anatomy" will carry its broad meaning, to cover all the branches of the field,—including normal histology and embryology.

One who ventures to touch on teaching aims and methods may be exposing himself, for it is sometimes said that the talk and the writing about teaching come from the indifferent teachers—while the good ones quietly apply themselves to teaching. Whether or not there is truth in this gibe makes no difference to me. And I am not disturbed about the possibility of boring you, since I feel sure that you are equally interested in the subject. At any rate, the schedule gives assurance that you will be bored for not longer than ten minutes!

Anatomists and their teaching have been repeatedly and bitterly criticized, perhaps especially by surgeons. This is not the place to discuss specific criticisms, but it is a fitting one for a review of the basic philosophy of our teaching and of our common obligations. First, there are three premises to be set down.

1. Anatomy is a utilitarian subject. Our students are under training for practical work, toward which anatomy contributes its share in factual knowledge and in cultivation of scientific method, study habits and manual practice.

2. The factual material of anatomy is a vast mass of detail, and even if it were desirable to force all that detail on the students none but the most exceptional could assimilate it. The anatomist is compelled to condense his subject and in the condensation the phases promising the greatest usefulness are selected for emphasis. Opinions and practices of teaching vary widely, though it is fair to say that no thoughtful anatomist would attempt to do more than to lay a foundation on which the student can later build as special need arises.

To choose an example in illustration, the intrinsic anatomy of the lung is not pursued to the detail that would equip for excision of the superior lingular

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\*Presented before the Society of University Surgeons, meeting in New Orleans, January 29, 1948.

segment of the left upper lobe. All that we can manage to do is to stress the generalities of bronchial and vascular patterns, hence each of the few men who may later prepare themselves for surgery of the lung must make special studies in the anatomy that is basic to these operative procedures. It would be wasteful to attempt to cover in our teaching of first year medical students all the detail that will be needed in each of the various specialties. Actually, limitations of time make such a program impossible; but if it could be carried out, much time and effort would be sacrificed at the expense of other important fields of undergraduate study.

3. It is sad, but true, that the memory retention of descriptive anatomy is poor—relative to the amount of study devoted to it by the first year student. It seems almost past belief that students in the upper classes would fail so miserably, as they have been said to do, in recalling, for example, the anatomy of inguinal hernia, stressed as much as it is. Yet even some more simple things may be forgotten. If we can believe one of these critics, an ophthalmologist colleague of mine, the students do not know where the posterior chamber is. As he said, "If you ask them, they will look under the bed for it!" This much at least is clear. Placed as it is in the front of the medical curriculum, anatomy is in a vulnerable position—the funneling point for criticisms issuing from every succeeding department of study. The anatomist is attentive to these criticisms, and sometimes a bit discouraged that his best efforts have so puny a yield.

This brings us to the main objective of the discussion—the offering of some proposals about how surgeons may help in a situation that is difficult enough for the anatomist even with such assistance.

First, continue with your criticisms. If anatomy is vulnerable, its teachers are, at the same time, truly appreciative of constructive criticism.

A few years ago we carried out at Tulane an experiment in this direction. At a series of meetings of the Executive Faculty, individual departments presented accounts of their teaching aims and methods and of subject content. The plan was conceived with the thought that we would thus gain familiarity with all the teaching programs in the school and especially with the purpose of obtaining a free exchange of comments. The results in the latter objective were disappointing, for but little was offered in the way of helpful criticism. This, I trust, deluded none of us, since any teacher, who has not fossilized, senses faults in his teaching and constantly seeks to correct them.

The anatomist, naturally, turns to the surgeon for criticism of his teaching because he is in a position to evaluate the results. When you find your students wanting in knowledge and understanding of something that you think they should know, someone should be told—but there are reasons for pause before the anatomist is charged with complete default. Perhaps, you are expecting

the impossible. In the first place, the most efficient work on the part of the teacher and the most conscientious effort of the student cannot obviate some forgetting. To claim that it can is to disregard a psychological law that is as stubborn as the law of gravitation. It may be that the item of deficiency involves details for which time cannot be afforded in the first year course, which has to be designed to do the best it can to provide a general working knowledge of the subject in the time allotted. As was mentioned before, the anatomist can go no further than to construct a foundation—and it remains for others not only to build on it, but also, it must be confessed, to be watchful for the need to repair those points where the anatomist left it incomplete or where the weathering of time has made the foundation insecure.

In the thinking of some, the process of medical education is compared to the erecting of a pyramid, with all the effort converging toward the apex—the clinical subjects toward which the basic sciences contribute. If resort must be made to some concrete symbol of such a program, I would prefer to picture an inverted pyramid, for we have license in educational discussions to ignore all problems of building actual pyramids. The conception of an upright pyramid has the disadvantages of implying that the figure is completed with construction of a pointed apex; the inversion allows for continued enlargement of mass, in keeping with the ideal that a man's education is never finished. If the educational pyramid is built by "horizontal teaching," it would be laid down in successive independent layers; first a layer of anatomy, then a layer of physiology, and so on. With "vertical teaching" the attempt is made, in one fashion or another, to secure integration of related subjects,—anatomy and surgery, for example,—that are separated in the curriculum. The anatomist is quite willing, even anxious, to do his share in anticipating future needs through selection and emphasis of the material presented to first year students. This is but a feeble expression of vertical teaching. However, the anatomist is ready also to participate in teaching extended into the latter years, where it may be brought into more intimate and specific relation with clinical subjects. This is "vertical teaching" carried to a more effective level, but it is still incomplete, since the principle involves interlocking in both directions.

The surgeon has at least two means of taking active part in the vertical teaching of anatomy. (1) The one of most immediate concern is available during his teaching of surgery. Gaps of anatomical knowledge may then be filled in and remembered anatomy may be strengthened by repetition and demonstrated application. This is surely a normal responsibility of the surgeon, not a delegation of tasks that could have been accomplished otherwise. (2) Further, the surgeon can play an important part in the teaching of first year students, either as a member of the anatomy staff or through an occasional appearance before the class as a lecturer or clinical demonstrator. The clinician brings to the teaching program a definite stimulus, to students and staff members alike, from the

very fact of his constant association with the applications of anatomy. The anatomy staff at Tulane includes two part time members who are surgeons. One, who practices general surgery, is attached to the course in gross anatomy, and the other, a neurosurgeon, limits his teaching to neuroanatomy. Other surgeons have been cooperative in presenting lectures and demonstrations on topics in which correlations of anatomy are especially instructive.

Another teaching program for first year students, begun here last session, may be mentioned in illustration of vertical teaching. Weekly clinical demonstrations are held throughout the session, to illustrate the basic sciences actually at work in diagnosis and treatment. At these demonstrations cases are selected so as to feature a phase of study in the concurrent first year subject. The next two clinics, for example, are scheduled for neurological cases with functional impairments resulting from central lesions. They will serve for correlation with the studies in neuroanatomy now under way.

May I leave with you the thought that we should not be too separately teachers of anatomy and of surgery. Our mutual purpose is the training of medical men, and that end may be better attained with joining of minds and effort.

## Motion Pictures in Medical Education\*

RALPH P. CREER

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American Medical Association  
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It has been said that the most worthwhile result of any war is the great advancement in medical science. This achievement is primarily due to the urgency of the situation and the great many cases available for treatment and study. Many other branches of science and industry share in this rapid progress. For example, the use of visual aids in mass teaching received its greatest impetus during World War II. I would like to broaden the scope of this paper to include other types of visual aids.

A report by the Bureau of Naval Personnel<sup>1</sup> on "Why Use Training Aids?" showed that students learned up to 35 per cent more in a given time; facts learned were remembered up to 55 per cent longer, thus making it possible to meet high standards in less time. In reporting these findings, it should be pointed out that all types of well prepared training aids were used under the most ideal circumstances. Visual aids were prepared for a given situation and coordinated with the teaching program.

During the year 1946-1947, approximately 55 per cent of the entire medical school population were ex-G.I.'s who have benefited by this type of teaching program while in the Armed Forces.

In December, 1946, the American Medical Association sent a Postwar Questionnaire to former Army and Navy medical officers.<sup>2</sup> One of the questions asked was, "What suggestions do you have for helping the doctor in Service keep up professionally?" Based on replies from 25,000 ex-Army and Navy physicians, one out of every three mentioned motion pictures which is about the same percentage as mentioned lectures.

### A. M. A. SURVEY IN MEDICAL SCHOOLS:

In 1946, the American Medical Association surveyed approved medical schools with regard to the availability of all types of projection equipment and the extent of their use of motion picture films. Forty-four schools responding indicated that they own motion picture equipment, or it was available to them on a loan basis. However, the number of motion picture projectors per school did not seem adequate to serve properly all departments. Four schools had silent projectors only. Projection equipment was still a critical item in 1946, but now production is beginning to catch up with the demand, and new models have begun to appear on the market. Very few schools had access to slide film projectors. All of the forty-four schools use films to a varying degree. Most of the films were borrowed from commercial or pharmaceutical companies. In answer to the question, "What films are needed to improve your teaching pro-

\*Read before the Annual Congress on Medical Education and Licensure, Chicago, February, 1948.

gram?"—the following six subjects were mentioned most frequently: surgery, physiology, pharmacology, anatomy, medicine and pathology. Many schools pointed out the need for basic teaching films rather than the technic-type pictures. The Northwestern University Medical School reported the use of more than 550 medical films in one year. This is mainly due to the services of an efficient Department of Medical Visual Education which encourages and facilitates the use of motion pictures. This department, separate from the Illustration Service, is constantly on the lookout for good basic teaching films. Members of the faculty may request the visual education department to locate specific films on specialized subjects. The visual aid department makes satisfactory arrangements for the scheduling, procurement, delivery and projection of motion picture films. In addition to the pictures which are loaned or rented, they have accumulated a permanent film library of about ninety-three motion pictures.

In lieu of a visual education department of this type in a medical school or university, it would seem advisable to designate the medical librarian as the custodian of source material on all types of visual aids available to medical schools. Inasmuch as their files contain reference material on textbooks and periodicals, it is only natural that faculty members should consult the librarian with regard to source material on visual aids. Speaking to the Medical Library Association in Cleveland last May, I made this suggestion. In the meantime, we have received a number of requests from members of this Association for copies of our printed materials.

In order to bring about a more extensive and widespread use of visual aids, a department of Visual Education has been organized recently at the University of Colorado Medical School under the direction of Dr. Hugh Kingerly.<sup>3</sup>

Special mention should be made of the excellent pioneer work in visual education by the Department of Anatomy at Duke University School of Medicine.<sup>4</sup> Dr. J. E. Markee has used slides, models, charts and about 1,500 feet of color motion picture film in connection with his anatomy course. These visual aids are closely integrated into the regular teaching program. In the past three years, all students have passed their anatomy course at Duke, as well as the National Board. The student reaction to this type of teaching is highly favorable.

Within the past two years a Committee on Medical Motion Pictures has been established by the American Medical Association, in connection with the Bureau of Exhibits.<sup>5</sup> The purpose of this committee is to promote a more widespread and intelligent use of films, and to act as a clearing house on matters of information. To this end the following services are offered to the medical profession.

**FILM LIBRARY**—At present our medical motion picture library consists of 197 copies of 61 subjects. We try to include basic type films at undergraduate as well as postgraduate level, which are not readily available through other sources. The British Information Service has donated several films including an excellent film on scabies, and recently we purchased a few of the best films produced by the Bureau of Medicine and Surgery, U. S. Navy. The Board of

Trustees has approved a budget for the purchase of additional films in 1948. There is no charge for the loan of our films except transportation fees. A list of these motion pictures is available for the asking.

During the year 1947, 1,337 films were lent to various medical organizations. A total of forty-five medical schools used 299 films from our library.

**SOURCE FILE**—We are in the process of organizing a comprehensive source file of medical films and when completed we hope to have a record of practically every worth while medical film which is available to the medical profession on a loan, rental or purchase basis. This file will be indexed and cross indexed according to subject and will be kept current. If members of your faculty are in need of information as to the availability of motion pictures on a specific subject, an inquiry sent to the Committee on Medical Motion Pictures will receive as much detailed attention as our limited staff will permit. To our knowledge this type of service is not available to the medical profession through any other organization. When writing for such data, may I suggest that you be as specific as possible. Until such a list is published (and it will be some time before it is printed) it will be impossible to furnish long detailed lists of films. For example, our present file includes approximately 430 films on the general subject of surgery, therefore, it will facilitate matters if requests will concern themselves with a special problem, such as: thoracic surgery, post-operative shock, cardiovascular diseases, hematology, etc.

**SOURCE LIST**—A Source List of about fifty-eight institutions, organizations and pharmaceutical companies distributing medical films at the professional level, has been prepared by the Committee on Medical Motion Pictures, and is available on request.

**REVIEWS**—During the past eighteen months, we have published reviews of medical motion pictures in *The Journal of the American Medical Association*. Similar to a good book review, these notices include a brief description of the film content, a comment as to the type of medicine or surgery illustrated, and a recommendation as to the audience level. Each film submitted for review is screened by specialists in the particular field, and a frank objective review is published. Apparently these reviews are fulfilling a long-felt need, because they have been very widely read both in this country and abroad. A booklet containing all reviews published in the JOURNAL, A. M. A., up to January 17, 1948, has been released for distribution. Copies can be obtained upon written request. Several copies will be sent to each medical school and to medical societies and others interested in the use of medical films.

**CLEARING HOUSE OF INFORMATION**—In addition to the library of films available on loan, the source list of medical film distributors, the complete source file being developed and the reviews published in *The Journal*, we are also serving as a clearing house on other general matters of information. Many foreign universities and medical societies have written us, or their representatives have visited the American Medical Association headquarters to make inquiries with regard to the availability of films produced in this country. We

are developing a satisfactory liaison with pharmaceutical companies and other producers of medical films. In some instances, motion picture scripts have been submitted to us for comment prior to production. Based on surveys and several hundred individual requests for films, we are in a position to advise as to the type of films needed by medical schools, medical societies and hospitals.

In many instances, sponsored films have been shown with a certain amount of apprehension, and more than once this feeling has been justified. However, I would like to predict that in the future, we will see a trend toward the production of more scientific presentations and less commercial "blurbs" for a manufacturer. Signs of this era have already appeared on the horizon. I refer to a series of two films on the "Kidney Function in Health and Disease," sponsored by the Lilly Laboratory for Clinical Research. The first film (entirely in animation) deals with the physiology of the kidney and the companion film has to do with diseases of the kidney. The Schering Corporation is sponsoring a series of basic films dealing with the subject of endocrinology. The first picture entitled "The Physiology of Normal Menstruation" is now available for distribution. Recently the Mead, Johnson Company has produced a series of lecture type films covering pediatrics and nutritional subjects, some of which will be of interest to the fourth year medical students, interns and pediatric residents. Special mention should also be made of a series of basic surgical films to be produced by the American College of Surgeons through a grant from the Johnson & Johnson Research Foundation. The first picture entitled "Anomalies of the Bile Ducts" is now ready for distribution.

In most instances teaching is adapted to the visual aids rather than the visual aids prepared especially for the teaching situation. In order that the production of basic audiovisual aids may be more closely correlated with the medical teaching curriculum, a Medical Film Institute is being organized by the Association of American Medical Colleges.<sup>6</sup> No doubt, Doctor Bloedorn who is more familiar with the purpose and present status of this project will discuss the subject in more detail.

Although we are recommending a more widespread use of visual aids, it is realized that simply exposing a class of students to 5,000 feet of motion picture film is not necessarily practicing visual education. Curriculum integration is highly important. Visual aids are not a panacea. They are a supplement to the teaching curriculum, not an entity unto themselves. They most certainly are not a teacher substitute; as a matter of fact, properly used, they place an added burden and responsibility on the instructor. Special training should be provided in the proper and effective use of visual aids. This instruction may be in the form of a summer workshop, institutes or extension courses to provide an opportunity for medical teachers to obtain formal training in the latest audio-visual methods.

**RESEARCH STUDY**—Addressing the Association of American Medical Colleges in 1945, Tom Jones<sup>7</sup> proposed, "an institute of visual education where the visual arts, crafts and sciences of medical communication can be taught

under ideal conditions. . . . An important function of the institute would be to conduct research and promote tests and experiments in all forms of visual technics." Pending the development of this proposed institute, I hope that some time soon a well controlled curriculum research study will be made in one or more of our medical schools in order to measure the effectiveness of films and other visual aids as an educational tool.

Does it not seem reasonable that medical educators should investigate honestly and thoroughly the part which films can and should play in improving the teaching of medical students?

#### DISCUSSION

**DR. WALTER BLOEDORN**, Dean, George Washington University School of Medicine, Washington, D. C.: Audiovisual aids have a place in medical education. However, much depends on their content, quality and ability to become "curriculum integrated." These aids include not only motion pictures but stills, slides, projectors, animated drawings and models.

The Association of American Medical Colleges has through its Committee on Audiovisual Aids recommended the establishment of a Medical Film Institute to serve as a coordinating agency to carry on this work. This committee has met with the interdepartmental committee composed of representatives of War and Navy Departments, Veterans Administration and United States Public Health Service. The interdepartmental committee will place at the disposal of the Association of American Medical Colleges, who in turn will provide the personnel required to establish and maintain it, a medical film institute.

Audiovisual aids will find their true level in medical education. A new teaching method is sustained not by the enthusiasm of its supporters but only by its true worth, which time alone can assay. These aids should improve medical teaching by (1) transmitting concepts of dynamic phenomena with greater clarity; (2) broadening the experience of the students by increased opportunities for presenting both specialized and diversified laboratory and clinical material; (3) shortening the time required to introduce and demonstrate essentially new and practical technics; (4) permitting more imaginative instructional activity as they provide instructors with a better opportunity to study and profit from the teaching method of others; (5) facilitating the rapid dissemination of information to others, and (6) lessening disparities of training which may exist among institutions with widely varying resources.

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## An Address\*

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It was suggested to me long ago that I should open a discussion on the relationships between our Canadian Association and the Association of American Medical Colleges. I did not view this as a very serious task. Opening a discussion is like thinking of a cocktail that one need neither make nor drink. I accepted that assignment with what I now know was unwarranted complacency. I was staggered by the intimation that what I was to be responsible for really was a dinner address—that was a cat of another color.

Such addresses, coming at a time when the members of the audience have had their blood warmed and their spirits quickened by a certain amount of stimulation judiciously applied and their hunger pains properly assuaged, require certain graces in the speaker. The subject matter may be serious or it may be a pleasantly embellished illustration of the obvious, explanation of the evident or expatiation on the commonplace. But no matter, if the speaker is congenitally lacking in wit, inadequately equipped with facility in the use of words and a thorough going introvert, there will not be much doubt as to the outcome. I, alas, have "neither wit nor words nor the power of speech to stir men's souls," so right now and in advance I feel myself damned ten miles beyond Hell for essaying a task calling for more than I have.

I know that it is poor policy and possibly not even good taste to apologize in advance, but, perhaps, it is better to explain and warn beforehand than to make an ineffectual defense afterward. But little and all as I fancy myself in this role I am grateful for the honor.

I am not sure just when the Association of American Medical Colleges was born, but in 1923 there was published the Proceedings of the 33rd Annual Meeting so things must have started about 1890. The urge that led to its conception and birth was no doubt the same that leads men actuated by similar ideals and engaged in similar work to get together to compare ideas and experiences and to give recognition to that primitive desire for kinship among those who pursue their particular tasks in a world that steadily and, perhaps, dangerously becomes more and more highly specialized. Specialization inevitably tends toward isolation and, unfortunately, insulation at times. I suppose, in fact I know, that those who devote themselves to special work and thus, to some extent, shut themselves up in a world of their own, do have the urge to talk to someone once in a while and be talked to, and the only ones they believe likely to meet their need are those who presumably think and feel as they themselves do.

Looking back to those early years, a copy of the constitution, as accepted

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\*Delivered at the Annual Meeting of the Association of Canadian Medical Colleges, held in Toronto, June 18 and 19, 1948.

and operative in 1923, is interesting. At that time, in so far as I can discover, but one Canadian school held membership and that was the venerable institution over whose medical preoccupations Dean Smith now presides. In that constitution, the basis of membership was mentioned, a fee established, rather rigid curricula, both preparatory and medical, were set out and inspection and evaluation every five years was promised.

Compared with the American Association, in which we now have the privilege of membership, our own Association is a mere fledgling. Conceived, I have no doubt, in the minds of many, but possibly first mentioned in my presidential address to the Medical Council of Canada in 1942—it started its life in the midst of the turmoil, stresses and confusions of war. In so far as we were concerned, the war had then been going on three years. Democracy may be and possibly is, the best form of government when peoples are faced with no great problems or the need for fateful decisions is not great. When problems of extreme urgency arise, or when they grow to massive proportions, modifications become necessary, new and intricate and yet direct modes of governmental direction and management must be devised. The need for unity of action and purpose necessitates some infringement on individual and institutional prerogatives.

As time went on, it became more and more evident that this was to be a total war, involving every class, every group participating in the national life and demanding of every individual that he make his contribution. The part to be played by the medical profession grew in significance and stature. A broad view of the medical resources of the country became necessary. And not only this,—it was plain that the supply of medical men in sufficient numbers and for an indefinite term would have to be guaranteed by some means. The Dominion Government had to set up machinery to ascertain facts in order that adequate planning could be carried out. Deans and representatives of medical schools were convened a number of times at Ottawa and their assistance sought. Each went and made his ideas known but this collecting of individuals, each interested in a task of national importance but each in his own way, soon began to show its shortcomings. It became evident that if medical schools were to make their maximum contribution, and if they as a group were to retain any recognizable independence of action, some form of coordination and something approaching a united front was necessary. And so the Association of Canadian Medical Colleges was born—a war child. At first almost entirely preoccupied with the needs arising from a national emergency, it justified its existence and warranted its continuance even when war ceased and for the same reasons that justified the American Association in its beginning and through its long life.

One of the Association's tasks, when it seemed likely that there was to be an end to the war in measurable time, was to cooperate in plans for extensive refresher and postgraduate work for physicians at the end of their service. This was a large task and many hours of both individual and collective effort were consumed. You all know that in spite of a careful canvassing to establish need and much planning, the whole effort, in a sense, was well nigh wasted. But

a small fraction of those expected actually took advantage of the plans made in their behalf. Personally, I had a suspicion beforehand that this would happen and for reasons that we need not discuss now. However, in some ways the work was worth while. It started us thinking about a new responsibility and obliged us to survey our resources anew.

In so far as objectives are concerned, the two Associations are similar. Both are concerned with the ordering and improvement of medical education, a task of the utmost social significance and more important now than ever before. Medicine has changed and is changing more rapidly now than at any time in past or living memory.

With this change in the practice of the profession, there must be changes in the preparation for it. The long backward of Time contains within it a great accumulation of both wisdom and nonsense. The feverish Present daily adds knowledge of new aspects of life, disease and death. From this vast accumulation there must be a winnowing of chaff and a keeping of the good grain. This residue of tried and trusted medical knowledge must be passed on, by dependable means. Selected minds, with promise of alertness and comprehension and potentialities for service, must be trained in the fundamentals of observation and judgment in order that these staggering advances of science may speedily be put to legitimate use. This means a constant shifting in emphasis in medical training. Biochemistry, for instance, a stone almost rejected by the builders, has become the head of the corner. We must be prepared to make changes when and where they are needed. Constant vigilance and a great willingness to modify views, must be the characteristics of our attitudes toward the curriculum.

Another thing of which we must take cognizance is the very definite emergence of medicine as a tremendously important item in the social structure. The practice of medicine is no longer a matter of private interest to physician and patient only. It is becoming in no uncertain way a matter of vital social concern. As members of a profession, for hundreds of years governed by tradition, we are too slow and are even resentful when our traditional attitudes are challenged, as about everything else is being challenged in a world that, restless and uneasy, shows a tendency to remodel things willy nilly. Tradition is honorable and should be heeded but the hand of the Past is not always the best or only one for the steersman's wheel. As a profession we present an amazing paradox. Radical in the last degree in matters of scientific investigation and practice, ultra conservative in all matters concerning our social relationships. As medical educators we are obliged to attempt a reasonable compromise in what we think and teach.

Without pretending to possess Olympian foresight and judgment, we are privileged, by reason of our position, and, indeed, obliged to stand between the membership of the profession, on the one hand, and the prowling and predatory politicians on the other. The one group fearfully watchful lest we in some way encroach on the privileges they have come to consider as rights;

the other group ever watchful for some enticing bait to dangle before the electorate with the usual promise of something for nothing. It is inevitable that in such a situation there will be lots of criticism for us and even worse. From time to time, a new hide may appear on the woodshed door, but if it does, it should show signs that its removal was not accomplished without struggle.

There is one other thing that has concerned me, and, of course, others, deeply. It is this: Why has the medical profession lost ground in the public regard? I am sure it has. You may agree and may have your own explanations to offer. To me this cold and melancholy fact seems inevitably related to at least three things: (1) *the fading of individualism*—all but lost in a tide of insistence on uniformity and conformity. The era of medical giants seems to have become submerged in mediocrity saved from being the worst possible only by the fact that it has more knowledge at its command and is at a somewhat higher general level than all preceding mediocrity. (2) *The recession of humanism*—slowly drowning in the sea of cold, precise science that would subject life to minute and manifold measurement of parts rather than contemplation and understanding of the whole. (3) *An obscuring of objectives*. The blight of Mammon, the desire for ease, the wild competition for those things that pass for greatness in a wealth blinded world, has fallen on the spirit of service. From its glorious position of eminence it shows signs of falling into the role of wistful secondary follower—a monarch stripped of his sober but princely raiment and arrayed in tattered garments.

We as medical educators individually think of these things. We struggle to uphold and advance those things which we believe to be right and in our two Associations we collectively try to further them.

We shall succeed poorly if we insist too much on uniformity which is not justified in any situation where not all facts are as yet known and where, on the other hand, there still is confusion of ideals and uncertainty as to the means of attaining them. Uniformity to a point is right and proper, but there must be room for new ideas, new ways of approach, new techniques. We as Associations must pay heed to this and guard ourselves against that passion for sameness that can only end in mediocrity or that stabilization and enforced conformity that is in reality a living death.

Most Canadian schools are members of the Association of American Medical Colleges—or, perhaps, we should say “were.” There have been advantages to us in the relationship. The Secretary has most willingly given us assistance whenever we sought it. He has repeatedly gone out of his way to give it. Occasionally, some of us have been able to attend the annual meetings. The JOURNAL has been liberally,—perhaps too liberally,—distributed. We have had the feeling that whether we saw much of them or not, we did have neighbors whose aspirations and thinking were much as our own.

The visiting, inspection and evaluation of our institutions by representatives of the American Association and the Council on Medical Education, resented at first by some who mistook their own bailiwick for the spotless Elysian fields,

has been a stimulating factor that far from doing harm has done much good. It is possible to lose sight of the forest in a too loving and doting contemplation of one's own berry patch.

As for the JOURNAL, it contains much that is good and helpful. It also contains much of the other kind of material that it is a waste of time to read. This I think is pretty nearly inevitable, considering all things, and I think we should be grateful for the grain and not rebel too much about there being some chaff.

The annual meetings that so many would like to attend are held at very widely separated places, many so distant that we being from State financed schools mostly cannot attend. We miss the most precious thing connected with meetings of this kind—the personal contacts, the informal personal talks, and to be mentioned quietly, the brief periods of circumspect conviviality with kindred souls.

In the past year, we have received intimation that the fee was to be increased to \$500. In 1923 it was \$50. For years it has been \$150. With all due allowance for deterioration in dollar value, some of us wonder why this massive and stunning increase has been found necessary. The fact of the matter is that my own school, and probably others, cannot afford the increased fee. I am reminded of a story I read somewhere: A traveler in that antique land, Tennessee, driving along a rather vernate country road encountered a lad of 9 or 10 years obviously much annoyed. He was kicking things about and swearing lustily. Enquiry soon elicited the cause of all this. "It's Maw, damn her, she's trying to wean me."

Now I am just trying to lighten what must be a trying experience for you and am not suggesting that a subtle attempt is being made to wean us. In the first place, we are not offspring that can be weaned and, of course, numerically we are not worth the bother.

#### What of the future?

The schools of this far flung Dominion stand in some degree apart, geographically, politically and, possibly, to some extent, in their views as to the basic philosophy and techniques of medical education. The ultimate objective is the same but like the Altar of Truth, there are many converging paths leading to it.

We want to be associated in some way with the American Association but we can scarcely, I think, accept status as a subsidiary, either of the general organization or a regional division. I, personally, cannot see what form other than affiliation of some sort would be feasible and this would entail negotiations as to terms, etc.

And now, as I approach the end of this performance, I feel keenly once more the sense of shortcoming that filled me with apprehension before. You have listened with kindly forbearance and my one hope is that I have not entirely wasted your time with inconsequential talk and that we may still be friends, and I once more the recipient of your patient tolerance.

## The Teaching of Applied Biochemistry to Medical Students\*

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In recent years there has been a trend in the teaching of laboratory biochemistry in the direction of greater emphasis on the application of theory to actual physiological problems. This change in emphasis, along with the considerable increase in knowledge in many fields of biochemistry, in our opinion justified a rather drastic revision of our system of laboratory teaching. The students we now have are better prepared in their premedical chemistry courses than formerly. Also, we thought that increased emphasis should be given to some sections of the subject and experiments devised covering other sections entirely neglected in our laboratory work. However, one of the largest considerations leading us to a change was that it appeared desirable to adopt a system of teaching where we devoted our laboratory teaching as much as possible to a study of physiological problems. Formerly, we had considered the materials involved in living tissues and the reactions they would undergo, but had made little use of this information other than as support to the lecture part of the course. We also thought it desirable to teach, as far as possible, with the use of experiments involving human subjects or experimental animals, since biochemistry is the science which deals with the chemical processes which take place in the living animal. A teaching procedure similar to what we planned was suggested in the following quotation from "Medical Education in the United States, 1934-1939."<sup>1</sup> "Instructors expressed some dissatisfaction with the biochemical course as currently given. One suggested that some of the more purely chemical procedures be discarded. This would allow time for a more balanced survey of the relative significance of chemistry and physiology in medicine. The subject of biochemistry might then be taught as a series of problems to be solved by the application of chemical-physical laws to physiological phenomena."

As to the actual content of our revised laboratory course, it includes in one form or another nearly all material formerly used and much new material. However, the emphasis is on more purely physiological problems than formerly. We now make laboratory assignments in terms of problems which may require from half an hour to several laboratory periods to complete. This system makes for greater efficiency and a considerable saving of time and effort on the part of the student. We feel that professional students should be given some freedom in the performance of their work and this seemed to us to be a step in that direction.

\*This paper outlines a laboratory course in biochemistry as set up by the writer. For the past five years the laboratory teaching in this department has been essentially as outlined here. The opinions expressed are those of the writer.

1. Medical Education in the United States, 1934-1939: Council on Medical Education and Hospitals of the American Medical Association, Chicago, American Medical Association Press, 1940, p. 128.

In the performance of the laboratory work, the students work singly or in groups of two, four, or eight according to what seems appropriate for the particular problem. For the experiments on human subjects, the students, in a group, take turns at being the subject.

We should state at this point that the laboratory course described below accompanies the series of lectures usual to most medical biochemistry courses. The lectures approximate in content the material included in our textbook which is one of the most widely used textbooks in medical biochemistry.

The first problem which we assign our students is one in which they perform the usual qualitative tests on known and unknown solutions of carbohydrates. Simultaneously running knowns and unknowns makes for keener observation of the tests and the practice of assigning all of the qualitative tests in a block permits the student to plan his work for greater efficiency. Duplicating and less practical tests were eliminated here and elsewhere in the course to make as much time as possible available for later physiological experiments. After further determining the identity of common sugars and determining the amount of sugar present in two unknown solutions, finally the students are given common and uncommon di-, tri-, and polysaccharides, the identity of which they are to determine as best they can with the tests they have available. In considering carbohydrates, fats and proteins, at appropriate points a few experiments illustrating colloidal properties are introduced.

In our laboratory work on lipids, we have included qualitative tests for unsaturation, free fatty acids, glycerol, phosphate, nitrogen and sterols. The students determine iodine number with the use of the pyridine sulfate dibromide reagent of Rosenmund-Kuhnhen and saponification number by the method of Riemann which involves saponification of the lipid with alcoholic KOH and then a two indicator titration during which the released fatty acids are extracted with benzene. This method eliminates the need for a blank determination. In another experiment a stable emulsion is prepared and its properties investigated.

The students perform qualitative tests for as many different amino acids as possible on five proteins, all of which are later used in nutrition experiments and two of which they have prepared themselves. The biuret and ninhydrin tests are performed in addition to a determination of the relative sensitivity of the most used qualitative tests for protein. Various physical properties of proteins such as the isoelectric point, salt precipitation, heat coagulation, etc., are suitably illustrated either directly or indirectly.

In the curriculum of the University of Georgia School of Medicine, as in many other medical schools, the science of nutrition is given detailed consideration only in the department of biochemistry. Because of the importance of this subject in the practice of medicine, it seemed desirable to expand our practical work concerned with foods and nutrition. The work, as we now teach it, is somewhat as follows:

The constituents of milk are separated in the usual manner and the presence

of lactose, minerals, riboflavin and thiamin are demonstrated in the aqueous filtrate. The tests used for riboflavin and thiamin are rough qualitative adaptations of quantitative fluorimetric methods. The casein prepared is used for qualitative tests for amino acids as mentioned above. The per cent of lactose and butterfat in milk are both determined.

The lipids are extracted from egg yolk and tested for combined phosphate, nitrogen and unsaturated fatty acids. The egg white protein is used as material for the qualitative tests for amino acids as described above. The butter fat, separated from the milk, and the egg yolk lipid along with several other common lipids are tested for ergosterol (provitamin D), cholesterol and vitamin A. The antimony chloride test for vitamin A is used and the potency of each lipid is roughly determined by comparison with a sample of cod liver oil of known vitamin A content which is run simultaneously.

The amount of vitamin C in citrus fruits is determined by titration with 2,6-dichlorphenolindophenol reagent. The determination is repeated after destruction of some of the vitamin by contact with air in alkaline solution. The pH of the citrus juice and the presence of various sugars are also determined. The students extract the plant pigments from green leaves and by the selective use of solvents, separate the chlorophylls and carotene and xanthophyll.

In the above experiments with foods, the qualitative and quantitative significance of the various substances considered with respect to human nutrition is emphasized both in the students' reports and in laboratory discussions.

Groups of students demonstrate to the class the effects of the following nutritional deficiencies which they have developed in rats: fatty acid deficiency, caloric deficiency, lysine deficiency, methionine deficiency, and deficiencies of vitamins A, the B complex and D. They also demonstrate the effect of feeding a protein of low biological value. The results of the feeding experiments involving protein are compared with the results previously obtained in the application of qualitative tests for amino acids present in these same proteins. Vitamin C or riboflavin tissue saturation tests and a brief, rough determination of nitrogen balance complete the laboratory work in nutrition. This experimental work is supplemented by several lectures treating various phases of practical nutrition and dietetics. From the dietary data collected during the nitrogen balance experiment, the subject's intake of various vitamins and minerals is calculated, and later the students plan special diets to meet certain specifications.

We now confine our work on digestion to the performance of fractional gastric analysis on selected subjects in whom the secretion of gastric juice is stimulated by an alcohol test meal, "chemical," or psychic stimulation. The determination of pH, free and combined acid, peptic and rennin activity are then made on these samples. Standard quantitative methods are used to determine the enzymatic potency of the samples. Similarly, assays are made of the proteolytic activity of preparations made from pancreas and liver. Later in the course, blood amylase and phosphatase as well as some oxidative enzymes are demonstrated.

With reference to the liver's excretory and secretory functions, gallstones are separated into their component parts and the tests on these substances compared, where possible, with tests on bile. In another problem, groups of students determine the liver glycogen formed in rats from glycerol, glucose, a fatty acid, a glycogenic amino acid and an aromatic amino acid illustrating the interconversion or lack of interconversion to carbohydrates of various foodstuffs. Galactose tolerance and hippuric acid liver function tests are performed on student subjects and finally, determinations of bilirubin and bile salts are made on urine from a jaundiced dog, and quantitative determination of the plasma bilirubin is made.

The alkali reserve of the blood is determined in student subjects by the indirect method of Fitz and Van Slyke, thus emphasizing the relationship between alkali reserve and urinary acidity and ammonia. Some of the subjects ingest  $\text{NaHCO}_3$  before performing this experiment. Further, the students compare titrable acidity of a 24 hour urine sample from a normal subject by the method of Henderson and Palmer with the amount of acid required to titrate a phosphate buffer of the molarity of the phosphate blood buffers from the pH of blood to that of urine, thus again giving emphasis to the rôle of the kidney in conservation of base and the maintenance of the alkali reserve.

The variations which may occur in the acid-base equilibrium in the blood plasma are illustrated by an experiment similar to Marriott's clinical method for measuring alveolar  $\text{CO}_2$  tensions. Supplemental air is blown through a bicarbonate buffer, which contains an indicator so that the pH may be estimated. By various variations in the technique the normal, and the possible deviations in acid-base equilibrium are illustrated. Included in the experiment are an estimation of the buffering capacity of the bicarbonate buffer of blood plasma, and calculations of the  $\text{CO}_2$  capacity and pH (Henderson-Hasselbalch equation) from data on the concentration of the carbonic acid and the bicarbonate.

The students perform the usual qualitative tests for normal and abnormal constituents of urine on their own urine and simulated pathological specimens. A 24 hour sample of urine from a patient with uncontrolled diabetes mellitus is collected or simulated. The students determine the amount of glucose excreted and compare this figure with the potential carbohydrate of the diet consumed as calculated by Woodyatt's formula. A determination of urea, creatinine and serum phosphate is made on blood from a normal dog and on blood collected from a dog after the ureters have been tied off for some time. The Van Slyke urea clearance test is performed by the students on subjects from their own number. Finally, a diuresis experiment is performed in which the rats are given by stomach tube large amounts of distilled water, isotonic saline, or isotonic glucose at frequent intervals. Some rats are also given pitressin, desoxy corticosterone or salyrgan. The urine excreted is then measured at periodic intervals.

In addition to the problems previously described in which hormones are involved we now use the following: Serum calcium, phosphorus and phosphatase and 24 hour urinary calcium and phosphorus excretion are determined

on dogs before and after administration of parathyroid extract. Each student determines his own blood glucose level on samples of blood taken from the finger tip while fasting and from 1½ to 2 hours following a meal. Later, glucose tolerance tests are performed by groups of students on subjects from their own number. In another problem the students determine blood glucose and lactic acid before and after a short period of strenuous exercise.

In investigating fluid balance in the body we have already mentioned a diuresis experiment which we use. In addition the students determine the "available fluid" in dogs, with sodium thiocyanate and "total body water" with the use of sulfanilamide.

The students also determine the plasma protein fractions and plasma chlorides on a sample of plasma so prepared as to simulate that of a patient suffering from hypoproteinemia in order that the significance of each of these factors in water balance may be pointed out.

During the investigation of the composition of various tissues, the pH of the skin is determined by staining the forearm with indicator dyes, showing that other body tissues may vary markedly in pH from that of the blood. Bone ash is used for qualitative tests for the minerals of bone, and tests are performed demonstrating the various inorganic and organic constituents of muscle tissue. The phosphatase activity of muscle brei is also quantitatively determined. A number of experiments are included which demonstrate oxidative systems found in plant or animal tissue. The presence of a proteolytic enzyme in liver tissue had been demonstrated earlier in the course.

Near the end of our course, we devote two weeks to an investigation of small research problems on which the students work in groups of four. An attempt is made to select small problems offering opportunity for original work but yet such that within the limitations of time available the students will get definite results. The students are encouraged to develop problems of their own, if possible, and a great many do this. At the end of the two weeks period, the students of the group prepare a report on the work as if they were preparing it for publication in one of the better scientific journals. Included are a brief review of the literature reference to the methods used, etc. It is the opinion of both the students and ourselves that this portion of the course constitutes a valuable contribution to their training.

It is to be noted that many of the above described experiments are standard experiments which are more or less widely used. Where such experiments could be found which served our aim, we have used them rather than working out new experiments or problems. A number have been derived from original papers in the literature or from suggestions of friends and colleagues, therefore no claim is made as to any very great degree of originality in the material covered in our laboratory course. Since all of our students are medical students, several experiments, which we otherwise might include, are omitted since the students later perform these experiments in their courses in physiology or pharmacology. A number of standard experiments of somewhat minor significance but which

help to round out our course are not mentioned above. In some cases the changes which we have made in our teaching were made in an attempt to make the presentation more interesting to the students, though the new presentation may have had no other apparent advantage.

We have found it convenient to arrange the material in our laboratory work partly in terms of materials and principles and partly in terms of tissues, organs or subjects being considered. This is similar to the arrangement used in many biochemistry textbooks. However, the too rigid separation of biochemistry into "blocks" seems to us to be undesirable when the subject is taught from a more or less physiological point of view, though from the standpoint of practical teaching, something of this sort is probably necessary. Such a separation seems highly artificial in view of the fact that one of the fundamental difficulties involved in teaching biochemistry or any other integrated subject is that in most cases, to fully understand a part of the subject, an understanding of the whole is necessary, though the subject must be learned gradually.

We feel that we have succeeded in presenting the subject of applied biochemistry in a more practical, thorough and effective manner than formerly, though the effective presentations of some aspects of applied biochemistry probably must await the day when biochemistry and physiology are taught as one subject. We think that our present system of teaching applied biochemistry enables us to make a much greater contribution to the medical education of the student than we made in the past.

## Medical Students Evaluate the Curriculum\*

At the end of their senior year, the members of the class of 1947 at the University of California Medical School drew up a questionnaire dealing with various aspects of their medical training during the previous four years. The first and second portions dealt with an evaluation of the individual instructors and departments, and the third portion, enclosed herewith, with the general problems in medical curriculum. The questions to be answered were chosen by a committee of students, and mimeographed questionnaires were filled out by fifty-four class members, the answers being recorded here in the form of per cents.

It was felt that such a poll of graduating students would be of interest to those concerned with medical education, and it is naturally hoped that its statistical validity will be increased by the addition of questionnaires from future classes.

### STUDENT QUESTIONNAIRE III—CURRICULUM

1. In each of the following subjects, would you have preferred more, the same, or less time? Assume an equally satisfactory level of instruction in each.

	More	Same	Less		More	Same	Less
Gross Anatomy	63	37	0	Obstetrics	8	85	8
Histology	2	86	12	Gynecology	2	87	11
Neuroanatomy	51	43	6	Pediatrics	14	86	0
Physiology	39	59	2	Medicine	29	69	2
Biochemistry	8	73	19	Dermatology	35	63	2
Pathology	27	73	0	Neurology	38	54	8
Bacteriology	2	73	25	Psychiatry	62	37	2
Parasitology	10	76	14	Surgery	4	79	17
Pharmacology	34	54	12	General Surg.	4	92	4
Preventive Med.	19	45	35	O. R. L.	26	64	10
Clinical Pathology	30	62	8	Orthopedic	15	59	26
Tropical Medicine	10	65	25	Ophthalmology	19	71	10
Radiology	64	36	0	Urology	4	84	12
Anesthesiology	40	60	0	Neurosurgery	10	50	40

2. Do you think that the required number of years spent in the premedical and medical curricula should be in the ratio of:

	Per Cent		Per Cent
2:6	8	3:6	6
3:5	46	4:5	4
4:4	19	2:5	6
3:4	10		

3. Which of the following subjects do you think should be required, elective, or not offered? Which would you have wished to take; which not? Assume adequate instruction.

*Group A:* Subjects which might be included in the premedical or early medical curricula.

\*Analysis of a Questionnaire by a Committee of the Class of 1947 of the University of California Medical School.

	Required	Elect.	Not Offer.	Take	Not Take
(1) General economics	25	66	9	62	38
(2) History of science, stressing the medical sciences	31	67	2	88	12
(3) Abnormal psychology	69	17	4	90	10
(4) Courses in social sciences related to medicine, such as sociology and anthropology	48	48	4	84	16
(5) Courses in the Humanities, such as history, philosophy, literature	63	37	0	88	12
(6) Greek and Latin derivations of medical terms	10	59	31	40	60
(7) First aid, with practical applications if feasible	40	42	18	65	35
(8) Biophysics	35	65	0	76	24
(9) Medical physical chemistry	38	56	6	75	25
(10) An individual research problem in a basic science	26	64	10	65	35

*Group B:* Subjects which might be included in the medical curriculum.

	Required	Elect.	Not Offer.	Take	Not Take
(1) Medical economics and sociology:					
(a) Broad background of problems of medical needs and care, including instruction in types of medical organization which have existed in the past, exist in various parts of the world today, and those proposed for the future	69	29	2	94	6
(b) Practical instruction in setting up an office, hospital organization, organization of services related to medicine such as welfare and charitable agencies	42	58	0	86	14
(2) Medical history	16	84	0	84	16
(a) History of psychiatry and psycho-analysis	10	80	10	56	44
(3) Psychosomatic medicine	64	20	6	88	12
(4) Biostatistics, with practical application to the clinical literature	31	62	7	58	42
(5) Anatomy, physiology, and psychology of the aging process	51	39	10	82	18
(6) Clinical lectures in Geriatrics	57	39	4	82	18
(7) If feasible, work with organizations concerned with public health	21	77	2	72	28
(8) Didactic and clinical instruction in minor surgery	76	24	0	98	2

(9) Elective anatomical dissections in  
the clinical years                    36     62     2     83     17

4. Do you think that more, the same, or less time should have been allotted in the last two years of medical school to:

	3rd Year			4th Year		
	More	Same	Less	More	Same	Less
Lectures	2	49	49	0	38	62
Lectures with demonstrations	55	39	6	41	47	12
Seminars	68	26	6	91	9	0
Amphitheater rounds	25	58	17	31	46	23
Ward rounds	65	33	2	72	26	2
Assigned patients	6	82	12	19	69	12

5. (a) Should patients be presented in the preclinical courses, where feasible, to illustrate the clinical aspects of the subjects?

Yes	No
94	6

- (b) Provided instruction by teachers with special qualifications could be obtained, should courses in clinical physiology be given during the clinical years?

Yes	No
98	2

#### 6. Elective Time

- (a) How much time, if any, do you think should be set aside in each year of the medical curriculum for elective work? Check in the appropriate space:

Year	0	5	10	25	50	75	100	Undecided
1st	43	30	26	1				
2nd	29	26	35	8				2
3rd	10	21	44	21				4
4th	8	34	48	4	2			4

- (b) Should the work which might be elected during this time include:

(1) Clinical work in any given department,	Yes	No	Undecided
such as following clinic patients throughout the year, attending rounds, etc.	91	9	
(2) Research	76	14	10
(3) Study other than research in preclinical fields	72	16	12
(4) Study in social sciences or humanities	38	40	22

7. With respect to the content and distribution of undergraduate instruction only, in medical school, do you think that the autonomy of each department should be replaced by the decisions of a single central faculty committee or "Faculty of Medicine?"

Yes	No	Undecided
58	25	17

#### 8. Grading

- (a) Would you prefer that:

(1) No grades be given	73
(2) Grades be given but kept by the individual departments	0
(3) Grades be turned into the Dean's Office but not told to the students	4
(4) Told to the students	23

(b) Would you prefer that examinations in general be:

- |                 |    |
|-----------------|----|
| (1) Announced   | 77 |
| (2) Unannounced | 10 |
| (3) Both        | 13 |

(c) During the clinical years, would you be in favor of having each student have a personal interview concerning his work, with a staff member with whom he had had contact, on leaving each of the major services?

Yes	No	Undecided
96	2	2

9. Would you rather have had more, the same, or less instruction in:

- |   | More | Same | Less |
|---|------|------|------|
| (a) Common clinical conditions                    | 85   | 15   | 0    |
| (b) Conditions less commonly seen                 | 0    | 54   | 46   |
| (c) Conditions commonly seen in office practice   | 89   | 11   | 0    |
| (d) Conditions commonly seen in hospital practice | 40   | 55   | 5    |

10. Do you feel that there has been too much, the proper amount, or too little emphasis placed on:

- |                  | Too Much | Prop. Amt. | Too Little |
|------------------|----------|------------|------------|
| (a) Diagnostics  | 19       | 81         | 0          |
| (b) Therapeutics | 0        | 11         | 89         |

11. Have you benefited more, the same, or less from your work with private patients than from teaching patients?

More	Same	Less
13	42	45

12. Having gone through three years of medical school under the accelerated program, and the fourth under the normal program,

- |   |    |        |   |
|---|----|--------|---|
| (a) Do you feel that as a consequence of the former you lost a great deal | 35 | gained | 6 |
| lost a little   | 42 |        |   |
| no loss   | 17 |        |   |

(b) Which do you feel would be most desirable:

- |  |    |
|--|----|
| accelerated program  | 4  |
| normal program   | 55 |
| a program which allowed an amount of vacation half way between the two | 35 |
| undecided  | 6  |

13. If feasible, do you think a routine psychological evaluation of each student should be done along with the medical examination, on entering medical school?

Yes	No	Undecided
83	6	11

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*The White Sulphur Springs Meeting*

The 59th annual meeting of the Association of American Medical Colleges, held in White Sulphur Springs, West Virginia, November 8-10, 1948, was, without a doubt, the most outstanding meeting of the Association. All the colleges in membership, except Southwestern Medical College, the University of the Philippines, and four Canadian schools, Manitoba, Western Ontario, Toronto and McGill, were represented. These schools registered 174 delegates, the greatest number ever registered. In addition, there were 63 individual registrations of persons representing many organizations interested in or dealing with medical education, directly or indirectly; representatives of the Government Medical Services, and many others.

The program was well received. Many of the papers read elicited considerable discussion. All papers had considerable impact on the thinking of medical educators and teachers. These papers will be published in the Journal of the Association as space permits.

The busiest group was the Executive Council, which held many meetings and discussed many very important topics, none the least of which was Selective Service as it touched on medical schools, premedical and medical students. A committee of the Association appointed by the Executive Council several years ago spent a great deal of time with the officials of Selective Service endeavoring to work out a plan which would make it possible to secure deferment for a sufficient number of premedical students to insure that medical schools would have their normal enrollments, and to secure deferment of all bona fide medical students. The plan prepared by the committee had previously been accepted by

Selective Service and became official when Selective Service released the plan through the press several weeks ago.

This plan was again discussed thoroughly at the Executive Session. Many objections to it were raised but finally the plan proposed by the committee and accepted by Selective Service was adopted as the plan to be followed by the medical schools. The committee will continue its efforts to overcome the objections raised by those who did not favor all of the provisions in the plan. It was stressed particularly that medical schools were free to choose their course so far as premedical students are concerned, not making any attempt at provisional acceptance if they did not wish to do so.

One school was added to the membership roll of the Association, namely, the Chicago Medical School—the last of the unapproved medical schools in the United States. This school had been inspected on numerous occasions by representatives of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association. At the last inspection, made in October, the inspectors became convinced that the school was meeting all accepted standards of medical education; therefore, acceptance of the application for membership of the Chicago Medical School was recommended and the Association voted "yes" on the recommendation. This acceptance covers all medical students now in attendance at the school and those coming after them; in other words, the action taken is not retroactive. The Council on Medical Education and Hospitals of the American Medical Association announced that the school will also be placed on the approved list of medical colleges.

The election of officers for the ensuing year resulted in the following: president, J. Roscoe Miller, Northwestern University; president-elect, Jos. C. Hinsey, Cornell University Medical College; vice-president, C. C. Carpenter, Bowman Gray School of Medicine; secretary, Dean F. Smiley; treasurer, A. C. Bachmeyer, University of Chicago. W. A. Bloedorn, George Washington University School of Medicine, and George Packer Berry, University of Rochester, were elected to membership on the Executive Council. Dr. Jos. C. Hinsey was re-elected chairman of the Executive Council. Since the new Constitution, which was adopted at this meeting, eliminates the ex-president from membership on the Council, the Council now numbers seven members instead of eight members as heretofore. Fred C. Zapffe, who has served the Association as secretary for nearly fifty years, announced his retirement, his successor being Doctor Smiley. Doctor Zapffe will continue with the Association in an advisory capacity as secretary emeritus and will also be the editor of the *Journal of the Association of American Medical Colleges*, which he founded in 1926.

The place of meeting for 1949 will be selected by the Executive Council sometime early next year; it will probably be a mid-Western location.

The Hotel Greenbrier was given a vote of thanks for its contributions to the success of this meeting. The appointments were perfect, and the service and cooperation of the entire hotel staff was beyond criticism.

Further details of the meeting will be published later.

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#### *The Borden Award*

In 1946, the Borden Foundation allocated an award consisting of \$1,000 in cash and a gold medal to the Association of American Medical Colleges for five years. This award was to be bestowed on any member of the faculty of a medical school in membership in the Association for outstanding research

in any field of medicine. The selection of the recipient of this award was left in the hands of a special committee to be appointed by the Executive Council of the Association. Nominations for the award could be made by any member of the faculty. Nominations were to be made on or before March 1 of any year. If no one was deemed worthy of the award in any year, it would go over to the following year. Work done during a five year period was the basis for consideration of a nominee.

In 1947, Dr. Vincent du Vigneaud, professor of biochemistry, Cornell University Medical College, was the recipient of the award for his outstanding research on penicillin. In 1948, Dr. George N. Papanicolaou, professor of anatomy, Cornell University Medical College, received the award for his research on the diagnosis of cancer.

The Committee on Borden Award has consisted of the following: Dr. E. A. Doisy, professor of biochemistry, St. Louis University School of Medicine; Dr. James McNaught, professor of pathology, University of Colorado School of Medicine; Dr. Chas. H. Best, professor of physiology, University of Toronto Faculty of Medicine; Dr. Brian Blades, professor of surgery, George Washington School of Medicine and Dr. John B. Youmans, professor of medicine, University of Illinois College of Medicine.

It is important that information about this award be broadcast in all member medical colleges and that faculties be urged to make nominations which must be received at the headquarters of the Association on or before March 1. The Association feels honored to have been given the opportunity to bestow this award and it is hoped that everyone connected with a medical school in a teaching capacity make it his business to comb the field of medical researchers and make an effort to select a nominee for consideration by the committee. Surely, it is possible to find one man every year who is deserving of this award.

### *Education for Professional Responsibility*

Medical educators contributed heavily to the success of the Inter-Professions Conference on Education for Professional Responsibility, held last April at Buck Hill Falls, Pennsylvania, and they have written important chapters in the recently published Carnegie Press story of the Conference, "Education for Professional Responsibility."

The story is told in "proceedings" form with papers printed as they were presented during the significant three-day meeting of educators from the fields of medicine, law, engineering, business and theology.

Spokesmen for medicine included Homer W. Smith, professor of physiology at New York University; James H. Means, Jackson Professor of Clinical Medicine at Harvard University; John Romano, professor of psychiatry at the University of Rochester; and Eleanor R. Cockerill, professor of social case work at the University of Pittsburgh.

These educators, together with their colleagues from the other professions represented, gathered at Buck Hill Falls last spring in an attempt to learn more about:

1. What the goals and aims of professional schools should be in this jet-paced world.
2. What type of courses must be included and how can these courses be taught in order to give our professional men and women (a) the best possible start in learning their professions from experience and (b) the qualities which citizenship in an enduring free society demands of its leaders.

In his paper, Doctor Romano berates medical schools for their failure to give students an opportunity to "obtain a reasonable grasp of the experience of illness beyond the hospital gate;" he declares that students do not get a clear idea of the actual and potential working relationships between student, doctor, social case-work, minister and priest and others who care for the sick; and

he complains that students are taught little about the projection of medicine into the total social and economic scene.

On the positive side, Doctor Romano says that if the future physician is to be a comprehensive human biologist, he must have a body of knowledge which will (1) "enable him to understand the constitution and operation of the human organism in its environment;" (2) enable him to assess with reasonable accuracy the success or failure of the organism's adaptive capacities in maintaining health;" and (3) ". . . acquaint him with what we know about the important needs, frustrations, gratifications, and adaptive devices peculiar to infancy, early childhood, pre-pubesce and adolescence, maturity and aging in our society."

In speaking on "The Clinical Training of the Medical Student," Dr. Means is disturbed by "the narrowness and conservatism of certain physicians and surgeons with respect to non-medical affairs," and states that one method of ridding medical profession of such narrowness in the future is for teachers of medicine to set high examples in their own living.

Dr. Homer Smith's paper on "Objectives and Objectivity in Science" must be read to be appreciated, for his sometimes poetic style coupled with his cold, unrelenting logic are simply not to be "translated" in several paragraph reviews.

But Doctor Smith's remarks, along with Doctor Means' and Doctor Romano's and those of Miss Cockerill on "A Social Worker Looks at Medical Education," should go on the "must read" list of everyone who is interested in medical school programs which will help make graduates not only competent practitioners, but good citizens and better men and women as well.

By no means, however, is the value of this new book restricted to those specifically concerned with medical education. Nor, for that matter, is it a book for only those in the professional education field.

When such great and creative minds as were gathered at the Inter-Professions Conference meet to discuss vital problems, it is a foregone conclusion that what is said will be stimulating and significant. This conference, which heard brilliant, frank, and sometimes disturbing analyses by such men as Theodore M. Greene, professor of philosophy at Yale University, and Elliott Dunlap Smith, provost at the Carnegie Institute of Technology and the man who originated the Conference, was no exception.

One such paper, the previously mentioned argument by Dr. Homer Smith, set off among the Conference members informal debates and discussions which lasted throughout the three-day meeting. And we can say that it will leave no reader passive.

In this light, then, "Education for Professional Responsibility" becomes more than the proceedings of a very important conference. It becomes a book to be read for its own sake; and a book which will benefit not only medical educators or educators in the whole professional sphere, but all intelligent, thinking laymen as well. (The book is published by the Carnegie Press, Carnegie Institute of Technology, Pittsburgh, 13, Pa. Price, \$3.)

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#### *Medical Film Institute*

Elsewhere in this issue of the JOURNAL is published a report from the Committee on Visual Aids to Medical Education of the Association of American Medical Colleges which deals with the

organization and operation by the Association of a Medical Film Institute. This project was first initiated by the Association in 1945 when an entire session of the annual meeting was given over to a discussion of the need and use of medical films as an aid to teaching by medical schools. The committee has worked incessantly in an attempt to bring the project to fruition. The Inter-departmental Committee on Films of the government medical services immediately became interested and put all of its facilities at the disposal of the committee. There has been close cooperation between these two groups ever since.

Now, the committee has made sufficient headway to be able to report a well thought out program, one which has enlisted the interest of a number of Foundations who have displayed a willingness to underwrite the project for five years. The report of the committee should be read carefully. Medical schools should give their wholehearted support and endorsement to the project and cooperate with the committee and the Association to bring it to full fruition.

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#### *Journal Subscription Rate Increased*

Because of the greatly increased cost of publication, the Association of American Medical Colleges is forced to increase the subscription rate for its JOURNAL from \$4.00 to \$5.00 beginning with the January, 1949, issue. Subscribers please take notice.

## College News

### *University of Illinois College of Medicine*

The Office of the Surgeon General, Department of the Army, has awarded a \$10,000 grant for the "Pharmacodynamic Study of Renal Blood Flow." This investigation will be conducted by the department of pharmacology, under the supervision of Dr. Jules H. Last.

The U. S. Public Health Service has awarded separate grants of \$6,000 and \$5,500 for visual education depicting clinical manifestations of uterine carcinoma to be undertaken under the supervision of Dr. Frederick H. Falls in the department of obstetrics and gynecology, and for a study of the physiological effects of the influenza virus on the mammalian host to be conducted under the supervision of Dr. J. E. Kempf in the department of bacteriology.

Parke, Davis and Company has made a \$1,000 grant for the development and evaluation of antihistamine and adrenergic blocking agents. The study will be conducted under the supervision of Dr. E. R. Loew in the department of pharmacology.

Ayerst, McKenna and Harrison, Ltd., has awarded a \$3,960 grant for a research project on "Urogastrone" to be conducted by the department of clinical science under the supervision of Dr. M. I. Grossman. Other research grants have been received from the American Pharmaceutical Association and the Upjohn Company.

Thirty-three physicians, including representatives from Brazil, Guatemala and Canada, enrolled in a postgraduate course in "Basic Otolaryngology" which began October 4 and will continue through June 18, 1949.

Dr. S. Howard Armstrong, Jr., has been appointed professor of medicine. He now serves as chairman of the department of medicine at Presbyterian

Hospital. Drs. William S. Hoffman and Robert E. Johnson have been named professorial lecturers in physiology. Doctor Hoffman serves as director of biochemistry at Cook County Hospital Laboratories and Hektoen Institute for Medical Research.

Doctor Johnson holds the position of director of research at the Medical Nutrition Laboratory.

Drs. Samuel A. Leader and Harry Slobodin have been appointed to the faculty with the rank of clinical assistant professor of radiology. Doctor Leader is chief of diagnostic x-ray at Vaughn unit, Hines. Doctor Slobodin has served as chief of the department of radiology at the Veterans Hospital since 1942.

Dr. Rudolph Novick has been appointed clinical assistant professor of psychiatry.

Dr. Joseph E. Bourque has been appointed assistant professor of physiology. Dr. James A. Campbell has received an appointment as assistant professor of medicine. Dr. Robert C. Berson of Rye, N. Y., has been appointed assistant dean. Doctor Berson will also serve as assistant director of clinics for the University of Illinois hospitals.

Dr. George R. Minor of Charlottesville, Va., has been appointed assistant professor of surgery.

Dr. Maurice Lev has been appointed assistant professor of pathology on a full time basis. Doctor Lev previously served as a research associate in pathology and as director of research in the department of pathology at Michael Reese Hospital.

The Junior League of Chicago, Inc., has presented a \$13,000 grant toward the support of the Consultation Clinic for Epilepsy. The clinic, operated by the department of psychiatry at the Illinois Neuropsychiatric Institute, is directed by Dr. Frederic A. Gibbs, and super-

vised by Miss Betty Vilas. Drs. John S. Garvin and Pauline Cooke are the attending physicians. Two members of the clinic staff are Junior League members, while volunteers give additional aid.

Two state divisions, the Division of Services for Crippled Children and the Division of Rehabilitation, have joined in the support of this project by referring patients and contributing financially to the Clinic.

The Junior League has taken the Consultation Clinic as a demonstration project to meet an urgent and neglected need in the community. It is hoped that other consultation clinics of this same type will be formed in other states.

A 1,000 bed hospital reserve unit, the 427th General Hospital, has been activated by the U. S. Army, under the sponsorship of the College of Medicine. Dr. John B. Youmans, dean, has been appointed commanding officer of the hospital.

Dr. Leroy W. Earley has been promoted to the rank of assistant professor of psychiatry.

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#### *University of Texas Medical Branch*

The late Mr. Harry C. Weiss, chairman of the Board of Directors of Humble Oil and Refining Company, Houston, made a gift of \$5,000 just prior to his death to the Medical Branch to support research studies on the character of sinus fluids under the direction of Dr. J. M. Robison, professor of otorhinolaryngology.

Dr. Grant S. Holmes has been appointed assistant professor of dermatology and syphilology.

Dr. John Harris, formerly in charge of dermatology and syphilology at New York Medical School and the Fifth Avenue Hospital, has been appointed lecturer in dermatology and syphilology.

Dr. Melville Sahyun, research consultant in biochemistry and nutrition, with headquarters in Santa Barbara,

California, has been appointed lecturer in the department of biochemistry and nutrition.

The Life Insurance Medical Research Fund of New York has made a grant of \$6,300 for research studies under the direction of Dr. George A. Emerson, professor of pharmacology.

The National Foundation for Infantile Paralysis, Inc., of New York has renewed a research grant in the amount of \$9,400 to assist the studies on polio virus under the direction of Dr. Morris Pollard, director of the Virus Laboratory.

The Upjohn Company of Kalamazoo, Michigan, has made a grant of \$3,000 to support research on antibiotics under the direction of Dr. E. J. Poth, professor of surgery and director of the Surgery Research Laboratory.

The Lederle Laboratories of Pearl River, New York, have renewed a grant of \$2,500 to support studies on rickettsial diseases under the direction of Dr. Ludwik Anigstein, director of the Rickettsial Research Laboratory.

The Office of Naval Research has granted \$10,000 for a two year period for the support of research on the tropical rat mite in relation to its role as vector of filariae, under the direction of Dr. J. Allen Scott, professor of epidemiology.

The Sugar Research Foundation of New York has renewed a grant to support studies of Dr. W. A. Selle, professor of physiology, on carbohydrates in relation to liver cancer.

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#### *University of Wisconsin Medical School*

Dr. Otto A. Mortensen has been appointed assistant dean. Dr. Walter J. Meek has been named dean emeritus and research professor of physiology. Dr. Clinton N. Woolsey of the Johns Hopkins University School of Medicine has been appointed to the recently created chair, the Slichter Research Professorship of Physiology.

The Wisconsin Alumni Research Foundation established the Charles Sumner Slichter Research Professorship in the Natural Sciences in memory of the late Professor Charles Sumner Slichter. Doctor Woolsey is the first appointee to that chair.

The medical school presented an intensive course in general medicine from October 18 through October 22, 1948, at the State of Wisconsin General Hospital and the medical school. The subject matter consisted of lectures, didactic work and ward rounds, and there were case demonstrations. The maximum registration was limited to 15 physicians and the minimum number for which the course was offered is eight physicians. Problems of general interest such as the anemias, diabetes, dermatologic conditions, pulmonary disabilities, gastro-intestinal pathology, newer drugs and diagnostic methods were included in the material offered. This course was under the general direction of Dr. O. D. Meyer, chairman of the department of medicine and chief of the Medical Service at the State of Wisconsin General Hospital. The fee was \$25.00.

More than 500 experts on combustion, flame and explosion . . . the energy forces of both peace and war, pooled their knowledge on these phenomena at the Fourth Symposium held September 7 through the 11th in the University of Wisconsin Centennial series. Scientists from Europe, Canada and the United States heard more than 100 learned papers on all phases of the subject.

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#### *Indiana University School of Medicine*

Dr. Alexander T. Ross, assistant professor of neurology and psychiatry, has been named to succeed Dr. David A. Boyd, Jr., as chairman of the department of neurology and psychiatry. Doctor Ross will become a full time member of the staff with the rank of professor of neurology. Appointment of a professor of psychiatry will be made later.

Doctor Boyd, professor of psychiatry and chairman of the department of

neurology and psychiatry for nearly ten years, resigned to become consultant in psychiatry at the Mayo Clinic where he will be associated with his close personal friend, Dr. Francis J. Braceland, in the development of a psychiatric division.

Surgical research has been added to the expanding investigative program of the school of medicine with the appointment of Dr. L. W. Freeman as director of surgical research and the granting of a Fellowship in Surgery to Dr. Joseph C. Finneran. The program will be under the supervision of Dr. Harris B. Shumacker, Jr., professor and chairman of the department of surgery. Doctor Freeman, previously associated with Doctor Shumacker in a similar capacity at Yale University, served as chief of paraplegia services at Vaughan and Kennedy General Hospitals and held the same post at Kennedy General Hospital when it was taken over by the Veterans Administration. Doctor Finneran, a graduate of Harvard and Johns Hopkins, recently completed an internship in surgery at Johns Hopkins Hospital.

Four Residents in Anesthesiology have been appointed for the Indiana University Medical Center. The two-year program is in charge of Dr. V. K. Stoeling, assistant professor and chairman of the department of anesthesiology.

Advancement of Robert B. Forney from instructor to assistant professor of toxicology on the staff of the Indiana University School of Medicine has been announced. A member of the staff since 1939, Doctor Forney, who holds A.B., A.M., and Ph.D. degrees from Indiana University, will be in charge of routine analyses while adding several classes to his teaching schedule.

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#### *Woman's Medical College*

Dr. Phyllis A. Bott has been made professor of physiological chemistry and chairman of the department. Doctor Bott became associate professor in 1941, and in 1946 succeeded Dr. Marion Fay, professor of physiological chemistry, as chairman of the department when Doc-

tor Fay was made dean. A new appointment to this department is that of Dr. Elizabeth M. Knott, assistant professor.

Under a grant from the National Advisory Cancer Council a department of oncology has been established at the Woman's Medical College of Pennsylvania. Dr. Isabella H. Perry is director of oncology, and Dr. Mildred Pfeiffer is assistant director.

The Division of Cancer Control, Department of Health, Commonwealth of Pennsylvania, has granted three fellowships in oncology to the following: Dr. Cornelia Motley, Dr. Mary B. Dratman, Dr. Janet Hampton. Dr. Sophie Brenner is also working in the department of oncology under a state grant.

The college has been named beneficiary for three legacies: Under the will of Dr. Margaret J. Delmore, class of 1899, in the amount of \$47,000, the income of which is to be used for scholarships; in the amount of \$17,000 under the will of Dr. Grace W. Sherwood, class of 1904, also for scholarship purposes; and the amount of \$5,000 from a trust under the will of Redwood F. Warner, an outright gift.

Renewals of grants: To Dr. E. Frances Stilwell from the American Cancer Society for 1948-49, \$3,045. To Dr. Ruth E. Miller from the U. S. Public Health Service for 1948-49, \$4,514. To Dr. Harold L. Israel from the U. S. Public Health Service for 1948-49, \$3,240.

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#### *University of Tennessee College of Medicine*

Visiting summer staff appointments: G. Gordon Robertson, visiting associate professor of anatomy; David W. Northup, visiting associate professor of physiology; C. P. Berg, visiting professor of chemistry.

Permanent additions to the staff: James N. Etteldorf, associate professor of pediatrics. Doctor Etteldorf will direct a new pediatric research laboratory developed at the University and John Gaston Hospital as a joint effort to im-

prove the quality of care for pediatric patients and to study and develop new technics in the treatment of childhood diseases. Donald B. Zilversmit, instructor in physiology. B. P. McKay, research assistant in biophysics. Mr. McKay has just returned from a month spent at Oak Ridge attending special courses dealing with the use of radioactive materials as employed in research. Mary E. Maxfield and Marshall R. Warren, assistant professors in pharmacology. Charles H. Eades, Jr., instructor in chemistry and Helmut R. Gutmann, research associate in chemistry. W. S. Ogle, Eldon Shouse, and Williams Bryan, instructors in anatomy.

Research grants made available by the United States Public Health Service include: a grant of \$6,000 to be used in studies on the relation between motility of the pyloric sphincter and the process of gastric evacuation, under the direction of Dr. J. P. Quigley; \$8,000 in support of further investigation by Dr. R. R. Overman on water and ionic imbalances occurring in malaria and related states; \$7,000 for investigations on the physiologic-psychiatric alterations in premenstrual tension states, under the direction of Dr. T. S. Hill and Doctor Overman.

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#### *Medical College of Virginia*

Dr. Ebbe C. Hoff, associate professor of neurophysiology, Medical College of Virginia (Richmond), published recently a Biographical Sourcebook of Compressed Air, Diving, and Submarine Medicine, a project which was carried out under the auspices of the Research Division of the Bureau of Medicine and Surgery, Navy Department. This study is a critical analysis of the medical and physiological aspects of work under high atmospheric pressures as in diving. The book also deals with the special hazards to submarine personnel and the protection and treatment of submariners.

Dr. W. T. Sanger, president, reported a total of \$91,865 in gifts to the institution since July 1, 1948. The gifts represented eight donors who contributed

to seven different phases of the college's program. Leading the list of gifts was \$37,900 from the American Cancer Society, and \$3,840 from the National Cancer Institute for cancer research. The Commonwealth Fund was credited with \$27,400 to be used for the development of a regional hospital program. Other gifts included \$15,000 from the American Tobacco Company for research in pharmacology, \$5,000 from the Virginia State Department of Mental Hygiene for neuropsychiatry, \$2,500 from the Richmond Area University Center for research in education in medicine, and \$100 for the Pastore Fund for the college and \$25 for cardiac research, each from private sources.

The college will add to the list of degrees it may award that of Doctor of Philosophy in medical and related sciences.

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#### *Bowman Gray School of Medicine*

Dr. James A. Harrill, assistant professor of surgery in charge of otorhinolaryngology and bronchoscopy, was one of the lecturers for the postgraduate course in ophthalmology and otolaryngology in Charleston, S. C., September 13 to 16. His subject was "Bronchography." The course was sponsored by the North Carolina Eye, Ear, Nose and Throat Society and the South Carolina Society of Ophthalmology and Otolaryngology.

Dr. W. E. Cornatzer, assistant professor of biochemistry; Dr. James Maxwell Little, associate professor of physiology and pharmacology; and Dr. Ernest Yount, Jr., instructor in internal medicine, were included in a group of ten North Carolina scientists who attended a four weeks' course in the techniques of using radioisotopes in research at Oak Ridge, Tenn., in August.

A grant of \$3,500 from the Roche Anniversary Foundation of Montclair, N. J., has been made to the department of physiology and pharmacology. The grant, which provides for study of two types of drugs—vasodilator and those

that constrict blood vessels—will be administered by Dr. Harold D. Green, head of the department. The school received a similar grant from the Foundation last year.

Dr. Harold D. Green served as associate editor for the section on "Circulation—Blood Flow Measurement" in a new book, "Methods in Medical Research," which is just off the press. The book is the first in a series of volumes to be published on the subject under the direction of Dr. Van R. Potter of the staff of the medical school of the University of Wisconsin, editor-in-chief.

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#### *Northwestern University Medical School*

Dr. J. Roscoe Miller, dean, has been elected president of Northwestern University to succeed Dr. Franklyn B. Snyder, who will retire September 1, 1949. Doctor Miller will assume his duties as president July 1, 1949.

Dr. Giuseppe Moruzzi, noted Italian neurophysiologist, has been appointed to the Northwestern University Medical School for a year of research. Doctor Moruzzi's appointment is under auspices of the Rockefeller Foundation, which last year established an annual visiting professorship in the institute.

The Italian scientist, who is director of the Institute of Physiology at the University of Parma, as well as professor of physiology in its medical school, will devote most of his research to the physiology of the brain, especially that of the cerebellum, and to the functional relation of the cerebellum to the cerebral cortex.

Another of Doctor Moruzzi's research fields is that of epilepsy. He is the author of a book on experimental epilepsy, and has written numerous articles on the physiology of the brain.

The specialist was educated at the University of Parma, which granted him the doctor of medicine degree, and at the University of Bologna, where he received the doctor of philosophy degree in physiology. In 1937 and 1938, he

was a Rockefeller fellow at the University of Brussels, Belgium, and in 1938-1939 at Cambridge, England.

An honorary vice-president of the Italian Electroencephalography Society, Doctor Moruzzi is also an honorary member of the British and American societies devoted to that field.

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*University of South Dakota  
School of Medicine*

The Huron clinic of Huron is providing three fellowships this year to freshmen medical students, which have been awarded to Robert E. Bell, Huron; Richard K. Hawkins, Kalamazoo, Mich., and Keith W. Sehnert, Frederick. Graduate assistants will be Warren E. Englehard, a graduate of Northern State Teachers College, and Chi-Heng Kau, who holds the bachelor of medicine degree from National Kiangsu Medical College. A Public Health Service fellowship in biochemistry has been awarded to Elaine V. Ordal, a graduate of Augustana College.

New medical school faculty members include Robert H. King, Ph.D., assistant professor of biochemistry; Harold N. Carlisle, Ph.D., assistant professor of microbiology; Jacob Belogorsky, M.D., assistant professor of pharmacology; Kenneth R. Berquist, M.A., instructor in microbiology; James Y. Clarke, M.D., assistant professor of clinical pathology and parasitology; Thomas E. Eyres, M.D., professor of public health and director of student health; Theodore Mazur, M.D., associate in anatomy; Clark Y. Gunderson, LL. B., lecturer on medical ethics and forensic medicine; Brooks Ranney, M.D., clinical assistant professor of obstetrics and gynecology; Theodore H. Sattler, M.D., clinical assistant professor of medicine; David J. Tschetter, clinical associate professor of radiology; Francis C. Tucker, M.D., research assistant professor of oncology, and Cornelia Van Natten, instructor in library methods. Dr. E. M. Stansbury will become clinical associate professor of obstetrics and

gynecology and Dr. H. F. Hansen will become clinical associate professor of physical diagnosis.

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*Boston University  
School of Medicine*

Colonel Charles B. Perkins, of the United States Army Medical Corps and resident in radiology at Massachusetts Memorial Hospitals, has been appointed instructor of Army medical and military science and professor of radiology. The ROTC program of the school of medicine will be re-established. Colonel Perkins will be in charge of the program when the academic year opens on September 14, and should help fulfill the needed civilian component and Army Reserve Corps strength which is needed. As an integral part of the ROTC program, the school of medicine unit will become one of the anticipated 44 medical schools in the United States to carry a military science course.

In accordance with the current move to combine departments of neurology, psychiatry and psychology under one head, Dr. William Malamud was appointed as chief of the university's department of psychiatry and psychology and as full time professor of psychiatry. Doctor Malamud was also appointed consultant in psychiatry on the staff of Massachusetts Memorial Hospitals and chief of psychiatric service of the outpatient department.

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*Long Island  
College of Medicine*

Chandler McC. Brooks, Ph.D., associate professor of physiology at the Johns Hopkins University School of Medicine, has been appointed professor of physiology and pharmacology and director of that department.

Dr. Jerome Peterson of New York City, who returned to this country recently from China where he has been chief of the China Mission of the World Health Organization for the past two years, has been loaned by WHO to the

college as acting executive officer of the Department of Preventive Medicine and Community Health. Until a permanent appointment is made next February, he will fill the post left vacant by Dr. Thomas D. Dublin, who recently became director of the National Health Council.

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*University of Utah  
School of Medicine*

Dr. C. H. Hardin Branch, formerly executive director of the Institute of Pennsylvania Hospital, at Philadelphia, has been appointed professor and head of the newly-formed department of psychiatry at the University of Utah College of Medicine. Doctor Branch assumed his duties October 1, 1948.

Dr. Edwin A. Lawrence has been named professor of surgery (oncology), and director of the Cancer Teaching program in the College of Medicine. Doctor Lawrence was formerly director of the Tumor Clinic at Yale University and more recently has been in private practice in thoracic surgery in Salt Lake City.

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*Creighton University  
School of Medicine*

Dr. Percy J. Carroll, a graduate of the St. Louis University Medical School, is now dean of the School of Medicine and chief of staff of Creighton Memorial-St. Joseph's Hospital. He will hold the rank of professor of preventive medicine. Dr. Charles M. Wilhelmj, dean since 1939, professor of physiology since 1930, takes over a new post, director of research, in addition to his professorship.

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*Tufts College Medical School*

Dr. Freddy Hornburger, associate in the clinical investigation division at the Sloan-Kettering Institute for Cancer Research, New York, has been appointed research professor of medicine, to act as head of the cancer research and cancer control units.

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*New York University  
College of Medicine*

A grant of \$73,500 was received from the Commonwealth Fund for a research project to study the emotional problems of the physically disabled while undergoing rehabilitation training. The research project will be conducted over a three-year period at the Institute of Rehabilitation of the New York University-Bellevue Medical Center. Dr. Morris Grayson, a psychiatrist and member of the college faculty, will direct the research. He will be assisted by a staff of three workers contributing psychologic and social service aid.

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*University of Oregon  
Medical School*

The pathology department, with the financial assistance of the American Cancer Society, has established a bone tumor registry, to assemble complete case records including the roentgenograms, pathologic material and follow-up data on bone tumor and other bone diseases; to make such material available for study by any qualified doctor of medicine in the state, and to assist physicians in the diagnosis of unusual or obscure bone lesions.

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*Harvard Medical School*

Dr. C. Sidney Burwell has resigned as dean of the faculty of medicine. The resignation will take effect on February 1, 1949. Doctor Burwell will continue actively as research professor of clinical medicine, devoting his time to teaching and research in the medical school and at the Peter Bent Brigham Hospital. He will resume his work on problems connected with heart disease.

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*University of Washington  
School of Medicine*

The Division of Health Sciences announces the appointment of Dr. Herbert Spencer Ripley as professor of psychiatry and executive officer of the department of psychiatry.

*George Washington University  
School of Medicine*

Three physicians of Puerto Rico who received their medical education at the George Washington University made a "good neighbor" gift to their alma mater here today. The gift of \$1,000 was made in behalf of the 30 physicians now practicing in the territory who are graduates of the school of medicine.

\* \* \*

*Yale University  
School of Medicine*

Retirement of the following members of the faculty is announced: Dr. Arthur H. Morse, former chairman of the department of obstetrics and gynecology; Dr. George M. Smith, research associate in anatomy with the rank of professor; and Miss Alice M. Hunt, assistant professor of anesthesia.

\* \* \*

*University of Colorado  
School of Medicine*

Dr. Ernest A. Schmidt, professor and head of the department of Radiology, has submitted his resignation. The department of radiology will be under the administration of a departmental committee until such time as a new professor and head of the department can be appointed.

*University of Kansas  
School of Medicine*

Doctor Slanetz has resigned as professor and chairman of the department of bacteriology.

\* \* \*

*University of Oklahoma  
School of Medicine*

Dr. John F. Hackler, professor of preventive medicine and public health, has resigned.

\* \* \*

*Wayne University  
College of Medicine*

Dr. Gordon H. Scott, professor of anatomy, has been named acting dean, succeeding Dr. Hardy A. Kemp, resigned.

\* \* \*

*University of Arkansas  
School of Medicine*

Dr. Joseph T. Roberts has resigned from the deanship but will continue as professor of medicine, full time.

\* \* \*

*Georgetown University  
School of Medicine*

Dr. Lloyd L. Lewis has been appointed professor of urology.

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## General News

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*University of Pittsburgh  
School of Public Health*

A new graduate school of public health is being set up at the University of Pittsburgh through a \$13,600,000 grant from the A. W. Mellon Educational and Charitable Trust. The first dean of the new school will be Dr. Thomas Parran, former surgeon general of the United States. The school will emphasize occupational and industrial health and hygiene and do basic research in all phases of public health. It is expected that the school will begin operations by the fall of 1949. An initial \$4,000,000 will enable the university to obtain an adequate faculty and facilities for teaching, and \$1,600,000 will be given during the first five years for operating and equipment expenses and for development. A \$5,000,000 building to house the school will be erected as soon as the school is accredited and the university is able to integrate its medical schools and hospitals in the medical center. The final \$3,000,000 will be paid within five years, when the school has developed "into a successful undertaking."

*Medical Student  
Scholarships in Illinois*

Three premedical students have received loans of \$5,000 to finance their medical education under the \$100,000 joint medical student loan fund set up by Illinois Agricultural Association and the Illinois State Medical Society. The students and the universities which they will attend are: Burton E. Bagby of Mounds, Loyola University Stritch College of Medicine, Chicago; L. C. Fiene of Sparta and Lawrence Irish of Blairstown, the University of Illinois. Men from rural communities who have completed premedical courses, who are approved by local farm bureaus and medical societies and who will agree to practice in rural communities are eligible for \$5,000 loans at the rate of \$1,000 a year to complete their four year medical course and one year internships. A list of twenty priority counties, where the situation is worse than usual, has been set up for Illinois. All three candidates are from such counties. The scholarship loan plan for medical training was established late in 1947.

## Book News

### *A Synopsis of Regional Anatomy*

By T. B. Johnston, M.D., Professor of Anatomy, University of London, Guy's Hospital Medical School. Ed. 6. Lea & Febiger, Philadelphia. 1948. Price, \$5.

Of particular value to medical students. Much new material has been added, including a summary of the extrapyramidal system. The book is neither a dissecting manual nor an abbreviated text, but a systematic organization of subject matter adapted to the review of regions previously dissected and studied with the aid of a standard text.

\* \*

### *Viral and Rickettsial Infections of Man*

Edited by Thomas M. Rivers, M.D., Director of the Hospital of the Rockefeller Institute for Medical Research. J. B. Lippincott Company, Philadelphia. 1948. Price, \$5.

The author and his associates present a logical explanation of why known chemotherapeutic agents and antibiotics will yield different results in different kinds of infectious diseases. The object of this work, according to the editor, is to indicate the practical approach to therapeutic problems in the viral and rickettsial fields. The scope of the work covered is unusual. It is complete. It is a large book but the two column arrangement makes reading easy. But why so many references?

\* \*

### *A Textbook of General Physiology*

By Philip H. Mitchell, Ph.D., Robert P. Brown Professor of Physiology, Brown University. Ed. 4. McGraw-Hill Company, Inc., New York. 1948. Price, \$7.50.

Leaning strongly to the biochemical aspect of physiology, this text requires an adequate background in chemistry. Human physiology is emphasized, but all phases are included in the discussion. While written primarily for the college student, the medical student will also find this a useful text.

\* \*

### *Personal and Community Health*

By C. E. Turner, Dr. P. H., Professor of Public Health Emeritus, Massachusetts Institute of Technology. Ed. 8. The C. V. Mosby Company, St. Louis. 1948. Price \$4.

Presenting the essential, present day knowledge of personal and community health, with enough anatomy, physiology and other underlying sciences to clarify and support the health teaching.

### *An Introduction to Medical Mycology*

By George M. Lewis, M.D., Associate Professor of Clinical Medicine (Dermatology), Cornell University Medical College, and Mary E. Hopper, M.S., Research Fellow in Medicine, Cornell University Medical School. Ed. 3. The Yearbook Publishers, Inc., Chicago. 1948. Price, \$8.50.

The contents are divided into two parts. The first deals with the clinical, theoretical and experimental aspects of the subject; the second outlines the laboratory procedures useful in examining a patient suspected of having one of the various mycosis. The characteristics and habits of the habitual fungous parasites are described. Common diseases receive more attention than rare ones. The book is illustrated well.

\* \*

### *Technique of Treatment for the Cerebral Palsy Child*

By Paula F. Egel, Cerebral Palsy Director, Children's Hospital, Buffalo, N. Y. Introduction by Winthrop M. Phelps, M.D., Children's Rehabilitation Institute, Baltimore, Md., Appendix by Mois P. Tanner, F. A. C. H. A., Superintendent, Children's Hospital, Buffalo, N. Y. The C. V. Mosby Company, St. Louis. 1948. Price, \$3.50.

This is the treatment of cerebral palsy as prescribed by Dr. Winthrop M. Phelps. The author's extensive experience makes her an authority on this subject.

\* \*

### *Zoology Laboratory Studies (Invertebrate and Vertebrate)*

By Guy P. Thompson, Associate Professor of Anatomy, Baltimore College of Dental Surgery. With a foreword by Norman E. Phillips, Ph.D., Chairman of the Zoology Department, University of Maryland. The C. V. Mosby Company, St. Louis. 1948. \$4.25.

Complete, concise; well illustrated. Excellent for the intending medical student.

\* \*

### *A Practical Manual of Diseases of the Chest*

By Maurice Davidson, M.D., Physician to the Brompton Hospital for Consumption and Diseases of the Chest, etc. Ed. 3. Geoffrey Cumberlege, Oxford University Press, New York. 1948. Price, \$16.50.

An excellent text for the specialist in this field. Much of the text has been rewritten and much new material has been added.

*The Therapy of the Neuroses and Psychoses: A Socio-Psycho-Biologic Analysis and Resynthesis*

By Samuel H. Kraines, M.D., Assistant Clinical Professor in Psychiatry, University of Illinois College of Medicine. Ed. 3. Lea & Febiger, Philadelphia. 1948. Price, \$6.50.

A thorough revision and incorporation of much new material. Reflects current awareness of the importance of recognition of tension (psychosomatic) disorders and emphasizes effective treatment of these conditions. A new chapter on psychosomatic geriatrics has been added. Schizophrenic thinking, pre-frontal lobotomy, group psychotherapy and treatment of epilepsy are just a few of the many revised subjects. Psychosomatic diseases, such as nervous stomach, insomnia, spastic colon and many others are considered to show the role of the forces involved—and the therapy of these forces when properly applied. The value of this book is further increased by the addition of two useful appendices: The Classification of Psychiatric Disorders Adopted by the U. S. Army and Statistical Tables on Mental Disease. The entire work is of value not only to practitioners, but to medical students who want specific and interpretive advice on how to interview psychiatric patients.

\* \*

*Essentials of Pathology*

By Lawrence W. Smith, M.D., formerly Professor of Pathology, Temple University School of Medicine, and Edwin S. Gault, M.D., Associate Professor of Pathology and Bacteriology, Temple University School of Medicine; with a foreword by the late James Ewing, of New York City. Ed. 3. The Blakiston Company, Philadelphia. 1948. Price, \$12.

The fine text is amplified by the hundreds of beautiful illustrations in black and white and in color. The new double column arrangement of the text makes for easy reading. The text is complete and freely illustrated by many case histories of pertinent cases. The only criticism that can be made is—the weight of the book.

\* \*

*An Introduction to the History of Dentistry*

By Bernhard Wolf Weinberger, D.D.S., New York. Vol. I and Vol. II. Volume I deals with medical and dental chronology and bibliographic data. It portrays the many steps in the origin and growth of dentistry from the time of prehistoric man until the nineteenth century. Volume II deals more particularly with the history of dentistry in America.

The C. V. Mosby Company, St. Louis. 1948. Price, \$20.

*Hospital Trends and Developments: 1940-1946*

Edited by Arthur C. Bachmeyer, M.D., Director University of Chicago Clinics and Director, Hospital Administration Course, University of Chicago, and Gerhard Hartman, Ph.D., Superintendent University Hospitals and Professor of Hospital Administration, State University of Iowa. The Commonwealth Fund, New York. 1948. Price, \$5.50.

This is a compilation of carefully selected articles selected from the periodical literature published in the hospital and allied fields during the years 1940-1946. In this book will be found the best in recent thought and opinion concerning the development of hospital service.

\* \*

*Therapy Through Interview*

(McGraw-Hill Series in Health Science: Amos Christie, M.D., Editor)

Stanley G. Law, M.D., Minnesota Psychiatric Institute. McGraw-Hill Book Company, Inc., New York. 1948. Price, \$4.50.

The author is a psychiatrist. He presents interview techniques, illustrating the handling of emotional difficulties by the dialogue method, using every day nontechnical language. The object is to stimulate psychiatric thought among general practitioners and to direct psychiatrists to short term active therapy.

\* \*

*Pharmacology*

By J. H. Gaddum, Sc.D., M.R.C.S., L.R.C.P., Professor of Pharmacology, University of Edinburgh. Ed. 3. Oxford University Press, New York. 1948. Price, \$8.

Written for the medical student. Facts with immediate practical applications receive special emphasis. One purpose of the book is to give an account of the experimental methods which have led to the introduction of many new therapeutic measures. Most of the information given is worth remembering—hence the value of the book for the medical student.

\* \*

*A-B-C's of Sulfonamide and Antibiotic Therapy*

Perrin H. Long, M.D., Professor of Preventive Medicine, Johns Hopkins University School of Medicine. W. B. Saunders Company, Philadelphia. 1948. Price, \$3.50.

The author relates a twelve year experience with these drugs for the benefit of the general practitioner. The clinical pharmacology, toxicity and methods of administration of these substances are discussed as well as other general aids for their employment.

*Symposia on Nutrition:*  
*Vol. I. Nutritional Anemia*

Edited by Arthur Lejwa. The Robert Gould Research Foundation, Cincinnati, Ohio. 1947.

This volume is made up of papers for the symposium on nutritional anemia. It is prepared in collaboration with the Scientific Advisory Committee of the Foundation—11 specialists. Dr. E. V. McCollum is the chairman of the symposium. Contributors besides Dr. McCollum, are Dr. Maxwell M. Wintrobe, Dr. C. A. Elvehjem, William J. Darby, Wolf W. Zuelzer, M. O. Schulte, G. E. Cartwright, Carl V. Moore, W. H. Sebrell and Rochard W. Vilter.

\* \*

*Handbook of Orthopedic Surgery*

By Alfred R. Shands, M.D., Medical Director of the Alfred I. DuPont Institute of the Nemours Foundation, in collaboration with Richard B. Raney, M.D., Associate in Orthopedic Surgery, Duke University School of Medicine. Ed. 3. The C. V. Mosby Company, St. Louis. 1948. Price, \$6.

Revised; special attention given to new and worthwhile developments in orthopedic surgery; 24 chapters to provide 24 class periods of one hour duration for undergraduate instruction. Sixteen chapters are arranged on the basis of pathology; seven according to anatomical region. Well illustrated.

\* \*

*Handbook for the Medical Secretary*

By Miriam Bredow, Dean of Women, Eastern School for Physicians' Aides. Ed. 2. McGraw-Hill Book Company, New York. 1948. Price, \$2.75.

Provides information on all aspects of medical office routine. A chapter on insurance has been added, a section on secretarial duties in relation to veteran patients, on office nursing techniques and on dental secretarial duties. There is also a chapter on the preparation of manuscripts; a chapter on medical terminology. A valuable book for those who are thinking of entering on this sort of a job.

\* \*

*Anatomy of the Human Body*

By Henry Gray, F.R.S., late Lecturer on Anatomy at St. George's Hospital Medical School, London. Ed. 25, edited by Charles Mayo Goss, M.D., Professor of Anatomy, Louisiana State University School of Medicine. Lea & Febiger, Philadelphia. 1948. Price, \$14.

Designated "the greatest of all textbooks on the subject," it has been revised, with the addition of many new illustrations. Many extensive changes have been made by Dr. Goss, especially in the section on muscles and fasciae based on his original research.

*Zinsser's Textbook of Bacteriology*

Revised by David T. Smith, M.D., Professor of Bacteriology and Associate Professor of Medicine, Duke University School of Medicine, and Associates. Ed. 9. Appleton-Century-Crofts Company, Inc., New York. 1948.

This book calls for neither comment nor criticism. It has for long been the standard text in bacteriology, ever since the first edition appeared in 1910. It has been thoroughly revised and new material included, some of it in special chapters. Speaking generally, it is the application of bacteriology and immunology to the diagnosis, specific therapy and prevention of infectious diseases. Many practitioners of today had to use this book as a text when they were medical students.

\* \*

*Preoperative and Postoperative Care of Surgical Patients*

By Hugh C. Ilgenfritz, M.D., formerly Assistant Professor of Surgery, Louisiana State University School of Medicine, with a foreword by Urban Maes, M.D., Emeritus Professor of Surgery, Louisiana State University School of Medicine. The C. V. Mosby Company, St. Louis. 1948. Price, \$10.

A planned program of treatment. The physiologic basis for each therapeutic measure advocated is discussed and the pathogenesis of each of the various complications is outlined. Not only are the procedures in widest general use described, but alternative measures are also presented. The book is well illustrated and a fine index is supplied.

\* \*

*A Manual of Practical Obstetrics*

By O'Donel Browne, M.B., Master Rotunda Hospital; Professor of Midwifery, Dublin University. Ed. 2. The Williams & Wilkins Company, Baltimore. 1948. Price, \$9.00.

Revised. The section on the infant has been omitted as well as Section A for the study of blood groups since these subjects are covered fully in other textbooks. Antenatal care and diet sections have been enlarged and the entire section on concepts of puerperal fever and treatment has been brought up to date. A practical book, primarily intended for medical students.

\* \*

*Fractures and Dislocations for Practitioners*

By Edwin O. Geckler, M.D., Professor of Orthopedic Surgery, Hahnemann Medical College. Ed. 4. The Williams & Wilkins Company, Baltimore. 1948. Price, \$5.

A companion book to the one dealing with plaster of paris technic, but of more value to the practitioner than to the student—but the latter can find much of usefulness in it.

*Methods in Medical Research: Vol. I*

Van R. Potter, Editor in Chief. The Year Book Publishers, Inc., Chicago. 1948. Price, \$8.00.

This book should prove valuable as a teaching aid in the training of medical and scientific research personnel and as a library reference in medical schools, laboratories and hospitals. The topics discussed in this volume are: Assay of Antibiotics, Henry Welch, editor; Circulation—Blood Flow Measurement, Harold D. Green, editor; Selected Methods in Gastrointestinal Research, A. C. Ivy, Editor; Cellular Respiration, Van R. Potter, Editor. Each volume will be divided into four or five principal, self contained sections, each of which shall, for that volume, represent one of the broad fields of medical research. Experts in each field will be the contributors, ensuring exact and reliable information on each subject.

\* \*

*Microbiology and Pathology*

By Charles F. Carter, M.D., Instructor in Pathology and Applied Microbiology, Parkland Hospital School of Nursing, Dallas, Texas. Ed. 4. The C. V. Mosby Company, St. Louis. 1948. Price, \$5.

Revised and partially rewritten. Infectious hepatitis and homologous serum jaundice are discussed and new chapters have been included on the hospital pathologist and defects of body development.

\* \*

*Nursing for the Future: A Report Prepared for the National Nursing Council*

By Esther Lucille Brown, Ph.D., Director, Department of Studies in the Professions of the Russell Sage Foundation. 1948. Price, \$2.

The ground is covered well by experts who served the author as consultants. Those who plan to take up nursing as a profession will do well to read this report carefully.

\* \*

*A Method of Anatomy: Descriptive and Deductive*

By J. C. Boileau Grant, M.B., Professor of Anatomy, University of Toronto. Ed. 4. The Williams and Wilkins Company, Baltimore. 1948. Price, \$7.

Many parts of this edition have been rewritten and the text thoroughly revised. More bold face type and many more headings and subheadings have been used than in former editions. Many new illustrations have been added. Emphasizes the correlation of facts and their presentation in anatomical regions. An inspiring book even for the undergraduate. The author's standing as a teacher of anatomy is justified by his work.

\* \*

*Psychiatry: A Short Treatise*

By William A. O'Connor, L.M.S.S.A. (Lond.), Medical Superintendent, Ashwood House, Kingswinford, Staffs. The Williams & Wilkins Company, Baltimore. 1948. Price, \$9.00.

The title is sufficiently descriptive. Much ground is covered but in a thoroughly understandable way. An appended glossary is very helpful in the understanding of terms used in the text.

\* \*

*A Textbook of Histology*

By the late Alexander A. Maximow, Professor of Anatomy, and William Bloom, Professor of Anatomy, University of Chicago. Ed. 5. W. B. Saunders Company, Philadelphia. 1948. Price, \$8.50.

Rewritten with the addition of much new material. The strong point of the book is that it presents the minute structure of the body from a functional point of view.

\* \*

*Plaster of Paris Technic*

By Edwin O. Geckler, M.D., Professor of Orthopedic Surgery, Hahnemann Medical College. Ed. 2. The Williams & Wilkins Company, Baltimore. 1948. Price, \$3.

This is a good book for every medical student to possess. It is well written; unusually well illustrated. If there is one subject in which students do not receive sufficient instruction, it is putting on a plaster cast. This book will make up for this deficiency.

\* \*

*Bailey's Textbook of Histology*

Revised by Philip E. Smith, Ph.D., Professor of Anatomy, and Wilfred M. Copenhaver, Ph.D., Associate Professor of Anatomy, Columbia University College of Physicians and Surgeons. Ed. 12. The Williams & Wilkins Company, Baltimore. 1948. Price, \$7.00.

Still an excellent text; revised; much of the text rewritten. Any book that survives for eleven editions must have merit and appeal.

\* \*

*Detailed Atlas of the Head and Neck*

By Raymond C. Grue, Ph.D., Associate Professor of Anatomy, and Carl E. Kleiner, Arist, Department of Anatomy, Columbia University College of Physicians and Surgeons. Oxford University Press. 1948. Price, \$15.

A high price to pay for such a book, but it is worth it. The illustrations are beautiful and instructive. The authors are to be complimented on their work.

**Pediatric Anesthesia**

By M. Digby Leigh, M.D., Director of Anesthesia, Vancouver General Hospital, Canada, and M. Kathleen Belton, M.D., Supervisor of Pediatric Anesthesia, Vancouver General Hospital. The Macmillan Company, New York. 1948. Price, \$5.50.

A good book for him who works in this field; not for the undergraduate student. It is way over his head.

\* \*

**Management of Obstetrics**

By Andrew M. Claye, M.D., Professor of Obstetrics and Gynecology, University of Leeds. Oxford University Press, New York. 1948. Price, \$3.75.

A "must" book for every general practitioner who does obstetrics.

\* \*

**Changing Disciplines**

By John A. Ryle, M.D., Professor of Social Medicine, University of Oxford. Oxford University Press, New York. 1947. Price, \$3.75.

Lectures on the history, methods and motives of social pathology by an acknowledged authority.

**Human Anatomy**

By Israel S. Kleiner, Ph.D., Professor of Biochemistry and Director of the Department of Physiology and Biochemistry, New York Medical College. Ed. 2. The C. V. Mosby Company, St. Louis. 1948. Price, \$7.

Numerous changes and additions have been made in this revision of a very good text for medical students. An entirely new chapter entitled "Chemical Structures in Relation to Biological Phenomena," is included. The author's many years of experience as a teacher of biochemistry have made it possible for him to offer a really fine text in biochemistry.

\* \*

**Primary Anatomy**

By H. A. Cates, M.B., Professor of Anatomy, University of Toronto. The Williams and Wilkins Company, Baltimore. 1948. Price, \$6.

This book is primarily intended for non-medical students taking courses in human anatomy. It is based on many years of teaching. The systematic rather than the regional approach is used. Some parts of anatomy are stressed because of their greater value to the nonmedical student. The numerous illustrations are schematic diagrams especially prepared for the teaching of these special groups of students.

**Fifth Edition****BOYD --- TEXT-BOOK OF PATHOLOGY**

By WILLIAM BOYD, M.D., M.R.C.P., LL.D., F.R.S.C.  
Professor of Pathology and Bacteriology, University of Toronto

Dr. Boyd presents *pathology of the living patient!* In this widely accepted text, the author features the essentials of both surgical and internal pathology, with emphasis always on the relation of symptoms to lesions. For the fifth edition, the entire book has been revised, enlarged by 41 pages and brought fully up-to-date. There are 30 new sections added, 12 topics listed under material incorporated into the text for the first time and 7 sections rewritten to bring them in line with current advances in the field. Outstanding are the 500 black and white illustrations and 30 plates in color. This is the ideal introduction to medicine and surgery.

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